

State of Arizona Exceptional Event Documentation of High Wind Dust Event PM₁₀ Exceedances on September 27-28, 2016 in the Maricopa County PM₁₀ Nonattainment Area

Produced by:

Arizona Department of Environmental Quality
Maricopa County Air Quality Department
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September 27-28, 2016 High Wind Dust Event

(Image source: <http://www.azfamily.com/story/33265871/slideshow-massive-wall-of-dust-hits-valley?autostart=true>)

Table of Contents

| | |
|--|-----------|
| I. INTRODUCTION | 7 |
| Summary of the Exceptional Event..... | 7 |
| Statutory and Regulatory Requirements..... | 8 |
| Procedural Requirements..... | 9 |
| Mitigation Requirements | 10 |
| II. CONCEPTUAL MODEL..... | 11 |
| Geographic Setting and Climate..... | 11 |
| Geographic Setting..... | 11 |
| Climate | 14 |
| Monsoon Season High Wind Dust Event Summary | 15 |
| III. CLEAR CAUSAL RELATIONSHIP | 23 |
| Introduction | 23 |
| Comparison of High Wind Dust Event Concentrations with Historical Concentrations | 23 |
| Chronological and Spatial Presentation of Wind, Visibility, and PM ₁₀ Concentration Data During the High Wind Dust Event in the Maricopa County PM ₁₀ Nonattainment Area | 30 |
| Visibility Photos | 64 |
| Conclusion..... | 65 |
| IV. NATURAL EVENT AND NOT REASONABLY CONTROLLABLE OR PREVENTABLE CRITERIA..... | 67 |
| Natural Event..... | 67 |
| Not Reasonably Controllable or Preventable | 67 |
| Identification of Natural and Anthropogenic Sources of Emissions..... | 69 |
| Identification of Relevant Control Measures | 71 |
| Implementation and Enforcement of Control Measures | 73 |
| Conclusion | 75 |
| V. SUMMARY CONCLUSION | 76 |

List of Tables

| | |
|---|----|
| Table 1-1. PM ₁₀ Monitors Affected by the High Wind Dust Event..... | 7 |
| Table 2-1. 24-Hour Average PM ₁₀ Concentrations (µg/m ³) at Maricopa County and PM ₁₀ Nonattainment Area Monitors on September 20-October 5, 2016. | 18 |
| Table 3-1. Data Sets Used in the Creation of Chronological and Spatial Maps. | 30 |
| Table 4-1. Control Measures included in the MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area. | 72 |

List of Figures

| | |
|---|----|
| Figure 2-1. Maricopa County PM ₁₀ nonattainment area geographic setting and PM ₁₀ monitor locations. | 12 |
| Figure 2-2. Drainage basins of the State of Arizona. | 13 |
| Figure 2-3. Phoenix monthly precipitation (top) and maximum temperature (bottom) climatology (source: National Weather Service). | 14 |
| Figure 2-4. Cross-section of a thunderstorm creating an outflow boundary and haboob (Desert Meteorology. Thomas T. Warner. 2004.) | 15 |
| Figure 2-5. Western states drought monitor as of September 27, 2016. | 17 |
| Figure 2-6. 24-hour average PM ₁₀ concentrations ($\mu\text{g}/\text{m}^3$) at Maricopa County and nonattainment area monitors on September 20-October 5, 2016. | 19 |
| Figure 2-7. Diurnal profile of monitors on September 27-28, 2016. | 20 |
| Figure 2-8. Hourly average PM ₁₀ concentrations, maximum hourly 5-minute average wind speeds, and maximum hourly gusts as recorded at the exceeding Glendale monitor. | 21 |
| Figure 2-9. Hourly average PM ₁₀ concentrations, maximum hourly 5-minute average wind speeds, and maximum hourly gusts as recorded at the exceeding JLG Supersite monitor. | 22 |
| Figure 3-1. Plot of 24-hour average PM ₁₀ concentrations at the Glendale monitor, January 2011 – December 2016. | 26 |
| Figure 3-2. Plot of 24-hour average PM ₁₀ concentrations at the JLG Supersite monitor, January 2011 – December 2016. | 27 |
| Figure 3-3. Plot of annual hourly average PM ₁₀ concentrations (1/1/2011 – 12/31/2015), hourly average PM ₁₀ concentrations in September (2011 – 2015), and diurnal PM ₁₀ concentrations at the Glendale monitor on the September 27-28, 2016 high wind dust event day. | 28 |
| Figure 3-4. Plot of annual hourly average PM ₁₀ concentrations (1/1/2011 – 12/31/2015), hourly average PM ₁₀ concentrations in September (2011 – 2015), and diurnal PM ₁₀ concentrations at the JLG Supersite monitor on the September 27-28, 2016 high wind dust event day. | 29 |
| Figure 3-5. September 27, 2016, 5:00 PM – 5:30 PM. | 31 |
| Figure 3-6. September 27, 2016, 5:30 PM – 6:00 PM. | 32 |
| Figure 3-7. September 27, 2016, 6:00 PM – 6:30 PM. | 33 |
| Figure 3-8. September 27, 2016, 6:30 PM – 7:00 PM. | 34 |
| Figure 3-9. September 27, 2016, 7:00 PM – 7:30 PM. | 35 |
| Figure 3-10. September 27, 2016, 7:30 PM – 8:00 PM. | 36 |
| Figure 3-11. September 27, 2016, 8:00 PM – 8:30 PM. | 37 |
| Figure 3-12. September 27, 2016, 8:30 PM – 9:00 PM. | 38 |
| Figure 3-13. September 27, 2016, 9:00 PM – 9:30 PM. | 39 |
| Figure 3-14. September 27, 2016, 9:30 PM – 10:00 PM. | 40 |
| Figure 3-15. September 27, 2016, 10:00 PM – 10:30 PM. | 41 |

List of Figures (Continued)

| | |
|--|----|
| Figure 3-16. September 27, 2016, 10:30 PM – 11:00 PM..... | 42 |
| Figure 3-17. September 27, 2016, 11:00 PM – 11:30 PM..... | 43 |
| Figure 3-18. September 27, 2016, 11:30 PM – 12:00 AM..... | 44 |
| Figure 3-19. September 28, 2016, 12:00 AM – 12:30 AM..... | 45 |
| Figure 3-20. September 28, 2016, 12:30 AM – 1:00 AM..... | 46 |
| Figure 3-21. September 28, 2016, 1:00 AM – 1:30 AM..... | 47 |
| Figure 3-22. September 28, 2016, 1:30 AM – 2:00 AM..... | 48 |
| Figure 3-23. September 28, 2016, 2:00 AM – 2:30 AM..... | 49 |
| Figure 3-24. September 28, 2016, 2:30 AM – 3:00 AM..... | 50 |
| Figure 3-25. September 28, 2016, 3:00 AM – 3:30 AM..... | 51 |
| Figure 3-26. September 28, 2016, 3:30 AM – 4:00 AM..... | 52 |
| Figure 3-27. September 28, 2016, 4:00 AM – 4:30 AM..... | 53 |
| Figure 3-28. September 28, 2016, 4:30 AM – 5:00 AM..... | 54 |
| Figure 3-29. September 28, 2016, 5:00 AM – 5:30 AM..... | 55 |
| Figure 3-30. September 28, 2016, 5:30 AM – 6:00 AM..... | 56 |
| Figure 3-31. September 28, 2016, 6:00 AM – 6:30 AM..... | 57 |
| Figure 3-32. September 28, 2016, 6:30 AM – 7:00 AM..... | 58 |
| Figure 3-33. September 28, 2016, 7:00 AM – 7:30 AM..... | 59 |
| Figure 3-34. September 28, 2016, 7:30 AM – 8:00 AM..... | 60 |
| Figure 3-35. September 28, 2016, 8:00 AM – 8:30 AM..... | 61 |
| Figure 3-36. September 28, 2016, 8:30 AM – 9:00 AM..... | 62 |
| Figure 3-37. September 28, 2016, 9:30 AM – 9:30 AM..... | 63 |
| Figure 3-38. Visibility photos on September 27, 2016 as windblown dust enters the nonattainment area. | 64 |
| Figure 3-39. Visibility photos of suspended windblown dust on September 27-28, 2016 within the nonattainment area. | 65 |
| Figure 4-1. Aerial photo of the immediate area upwind of the exceeding Glendale and JLG Supersite monitors. | 70 |

List of Appendices

Appendix A – ADEQ Forecast Products

Appendix B – NWS Meteorological Observations

Appendix C – Notice of Public Comment Period

Appendix D – Exceptional Event Initial Notification Form

I. INTRODUCTION

This documentation is being submitted to the Environmental Protection Agency (EPA) to demonstrate that exceedances of the 24-hour PM₁₀ standard at the Glendale and JLG Supersite monitors in the Maricopa County PM₁₀ nonattainment area on September 27-28, 2016 should be excluded from use in determinations of exceedances or violations of the 24-hour PM₁₀ National Ambient Air Quality Standards (NAAQS) as an exceptional event caused by a high wind dust event. This documentation serves to meet the requirements of Clean Air Act Section 319(b) (Air quality monitoring data influenced by exceptional events) and the EPA final rule, *Treatment of Data Influenced by Exceptional Events* (81 FR 68216), as codified in 40 CFR Sections 50.1 and 50.14. Additionally, state and local agencies are in the process of developing a mitigation plan for the Maricopa County PM₁₀ nonattainment area to meet the requirements of 40 CFR Section 51.930. The mitigation plan will be submitted to EPA by September 30, 2018, as required by 40 CFR Section 51.930(b)(3).

Summary of the Exceptional Event

On September 27, 2016, a strong evening thunderstorm outflow materialized over the west-central desert of Pinal County, sending significant blowing dust northward into the Maricopa County PM₁₀ nonattainment area. The National Weather Service issued a blowing dust advisory for the greater Phoenix area, warning of wind gusts up to 40 mph and localized visibilities falling below one mile. Sustained winds near the source area of the outflow were reported as high as 25 mph with gusts of 41 mph. As the outflow moved north into the nonattainment area, wind speeds decreased, but were still significant enough to carry the initial wall of windblown dust into the area. The outflow winds died down after reaching the core of the greater Phoenix area, leaving the dust trapped and suspended in the air overnight and into the morning hours of September 28, 2016, ultimately causing exceedances on September 27 and 28, 2016.

PM₁₀ concentrations spiked rapidly in the greater Phoenix area with the arrival of the outflow-generated windblown dust, with five-minute average concentrations as high as 2,860 µg/m³. PM₁₀ concentrations remained elevated throughout the evening and into the morning of September 28, 2016, as trapped windblown dust slowly settled out of the air under calm conditions. Two monitors located in the central portion of the nonattainment area exceeded the 24-hour PM₁₀ standard on September 27, 2016, and one monitor exceeded on September 28, 2016, as a result of the high wind dust event (Table 1-1). The source area of the windblown dust is identified as the desert of west-central Pinal County. While the outflow-generated winds were strong enough to transport windblown dust into the nonattainment area, wind speeds had started to subside as the outflow reached the nonattainment area, making it unlikely that any significant windblown dust from anthropogenic sources within the nonattainment area contributed to the exceedances.

Table 1-1. PM₁₀ Monitors Affected by the High Wind Dust Event.

| Monitor Name | County | Operating Agency | Monitor ID | Exceeding 24-Hour PM ₁₀ Concentration |
|---------------|----------|---|-------------|--|
| Glendale | Maricopa | Maricopa County Air Quality Department | 04-013-2001 | 180 µg/m ³ (9/27/2016) 161 µg/m ³ (9/28/2016) |
| JLG Supersite | Maricopa | Arizona Department of Environmental Quality | 04-013-9997 | 223 µg/m ³ (9/27/2016) |

Statutory and Regulatory Requirements

Clean Air Act Section 319(b) defines an exceptional event as an event that:

- (i) affects air quality;
- (ii) is not reasonably controllable or preventable.;
- (iii) is an event caused by human activity that is unlikely to recur at a particular location or a natural event; and
- (iv) is determined by the Administrator through the process established in the regulations promulgated under paragraph (2) [Regulations] to be an exceptional event.

EPA regulation in 40 CFR Section 50.1(j) further defines an exceptional event as:

“...an event(s) and its resulting emissions that affect air quality in such a way that there exists a clear causal relationship between the specific event(s) and the monitored exceedance(s) or violation(s), is not reasonably controllable or preventable, is an event(s) caused by human activity that is unlikely to recur at a particular location or a natural event(s), and is determined by the Administrator in accordance with 40 CFR 50.14 to be an exceptional event. It does not include air pollution relating to source noncompliance. Stagnation of air masses and meteorological inversions do not directly cause pollutant emissions and are not exceptional events. Meteorological events involving high temperatures or lack of precipitation (*i.e.*, severe, extreme or exceptional drought) also do not directly cause pollutant emissions and are not considered exceptional events. However, conditions involving high temperatures or lack of precipitation may promote occurrences of particular types of exceptional events, such as wildfires or high wind events, which do directly cause emissions.”

EPA regulation in 40 CFR Section 50.14(c)(3)(iv) states that a demonstration to justify the exclusion of monitor data as an exceptional event must include:

- (A) A narrative conceptual model that describes the event(s) causing the exceedance or violation and a discussion of how emissions from the event(s) led to the exceedance or violation at the affected monitor(s);
- (B) A demonstration that the event affected air quality in such a way that there exists a clear causal relationship between the specific event and the monitored exceedance or violation;
- (C) Analyses comparing the claimed event-influenced concentration(s) to concentrations at the same monitoring site at other times to support the requirement at paragraph (c)(3)(iv)(B) [clear causal relationship] of this section. The Administrator shall not require a State to prove a specific percentile point in the distribution of data;
- (D) A demonstration that the event was both not reasonably controllable and not reasonably preventable; and
- (E) A demonstration that the event was a human activity that is unlikely to recur at a particular location or was a natural event.

Additionally, specific regulatory requirements related to demonstrations for high wind dust events are included in 40 CFR Section 50.14(b)(5). Details on how the statutory and regulatory requirements are addressed in this documentation are presented in the bulleted list below:

- Chapter II of this assessment includes a narrative conceptual model that describes the genesis of the high wind dust event and how PM₁₀ emissions from the high wind dust event caused the PM₁₀ exceedances on September 27-28, 2016 in the Maricopa County nonattainment area.
- Chapter III provides a detailed body of evidence that the event affected air quality through the clear causal relationship between the PM₁₀ emissions from the high wind dust event and the exceedances at the monitors in the Maricopa County PM₁₀ nonattainment area. Section III also includes an analysis comparing the event-influenced exceeding PM₁₀ concentrations at the exceeding monitors to historical PM₁₀ concentrations at the monitors.
- Chapter IV presents evidence that the high wind dust event was a natural event and that the high wind dust event was neither reasonably controllable nor preventable.
- Chapter V includes a summary conclusion of the evidence presented in Chapters II-IV.

Procedural Requirements

This procedural requirements for submitting a demonstration to EPA for an exceptional event are included in 40 CFR Section 50.14(c). The procedural requirements include the schedules and procedures for notifying the public when an event occurs; for providing EPA with the initial notification of a potential exceptional event; and for documenting the public comment process. Specific procedural requirements are presented below:

- 40 CFR Section 50.14(c)(1)(i) – Public notification that event was occurring:

The Arizona Department of Environmental Quality (ADEQ) issued ensemble air quality forecasts for the Greater Phoenix area and dust control forecasts for Maricopa County on September 26-28, 2016 that discuss the possibility of blowing dust and elevated PM₁₀ concentrations as a result of thunderstorm outflows from monsoon season weather patterns. The forecast products that were issued on September 26-28, 2016 are included in Appendix A.

- 40 CFR Section 50.14(c)(2)(i) – Initial notification of potential exceptional event by creating an initial event description and flagging the associated data that have been submitted to the AQS database:

The Maricopa County Air Quality Department (MCAQD) has created an initial event description (high wind dust event) and flagged the associated air quality monitoring data for September 27-28, 2016 as an exceptional event in AQS. The following monitors have been flagged as exceeding the PM₁₀ standard on September 27-28, 2016 as a result of a high wind dust event:

September 27, 2016: Glendale (04-013-2001) and JLG Supersite (04-013-9997)
September 28, 2016: Glendale (04-013-2001)

- 40 CFR Section 50.14(c)(2)(i)(A) – Regular communication with the EPA Regional office to identify data that have been potentially influenced by an exceptional event, to determine whether

the identified data may affect a regulatory determination and to discuss whether the State should develop and submit an exceptional events demonstration:

ADEQ began initial discussions with EPA about this event on May 18, 2017. ADEQ submitted formal initial notification of the September 27-28, 2016 high wind dust event to EPA Region IX at that time.

- 40 CFR Section 50.14(c)(2)(i)(B) – For data that may affect an anticipated regulatory determination or where circumstances otherwise compel EPA to prioritize the resulting demonstration, EPA shall respond to the State’s initial notification with a demonstration due date:

EPA did not provide a due date for this demonstration.

- 40 CFR Section 50.14(c)(2)(i)(C) – EPA may waive the initial notification of potential exceptional event process on a case-by-case basis:

EPA did not waive the initial notification of potential exceptional event process.

- 40 CFR Section 50.14(c)(3)(v) – With submission of the demonstration containing the elements in 40 CFR Section 50.14(c)(3)(iv), the State must document that a public comment process was followed, submit any public comments received, and address in the submission to EPA those comments disputing or contradicting factual evidence provided in the demonstration:

ADEQ posted this assessment report on the ADEQ webpage and placed a hardcopy of the report in the ADEQ Records Management Center for public review. ADEQ opened a 30-day public comment period on July 31, 2017. A copy of the public notice certification, along with any comments received and responses to those comments, will be submitted to EPA, consistent with the requirements of 40 CFR Section 50.14(c)(3)(v).

Mitigation Requirements

Per the requirements of 40 CFR Section 51.930(b)(1)(B)(ii), EPA provided written notification in the Federal Register notice for the EPA final rule, *Treatment of Data Influenced by Exceptional Events* (81 FR 68216), that the Maricopa County PM₁₀ nonattainment area is required to develop a mitigation plan for high wind dust events that satisfy the requirements of 40 CFR Section 51.930(b)(2). A high wind dust event mitigation plan for the Maricopa County PM₁₀ nonattainment area is required to be submitted to EPA by September 30, 2018. State and local agencies are in the process of developing the mitigation plan. The documentation for the September 27-28, 2016 high wind dust event is being submitted to EPA before a mitigation plan for the Maricopa County PM₁₀ nonattainment area is in place as allowed under 40 CFR Section 50.14(b)(9)(ii)(B).

II. CONCEPTUAL MODEL

Geographic Setting and Climate

Geographic Setting

The Maricopa County PM₁₀ nonattainment area is located in the Salt River Valley in south-central Arizona. It lies at a mean elevation of 1,090 feet above mean sea level (msl) in the northeastern part of the Sonoran Desert. Other than the mountains in and around the area, the topography of the area is generally flat. The area is surrounded by the McDowell Mountains (~4,200 ft msl) to the northeast, the foothills of the Bradshaw (~7,900 ft msl) and Mazatzal (~7,900 ft msl) ranges to the north, the White Tank Mountains (~4,500 ft msl) to the west, the Sierra Estrella (~4,450 ft msl) to the southwest, and the Superstition Mountains (~5,000 ft msl) far to the east. Within the area are the Phoenix Mountains (~2,600 ft msl) and South Mountain (~2,600 ft msl). Current development is pushing north, west, and south into Pinal County.

The PM₁₀ nonattainment area contains a fairly dense network of PM₁₀ monitors throughout the area, with a much less dense network of monitors located throughout the rest of the state. Figure 2–1 shows the general geographic setting of the nonattainment area, as well as the locations of PM₁₀ monitors in the nonattainment area and throughout the state.

Figure 2–2 depicts the drainage systems or watersheds for the State of Arizona. Many of the rivers that form Arizona's drainage system are dry for most of the year and, consequently, are sources of silt and fine soils that become suspended and add to regional PM₁₀ loadings during high wind events. Much of this alluvial matter and fine soil is deposited in the low lying areas of central and southern Arizona, with larger depositional areas focused in and around the confluences of dry river channels.

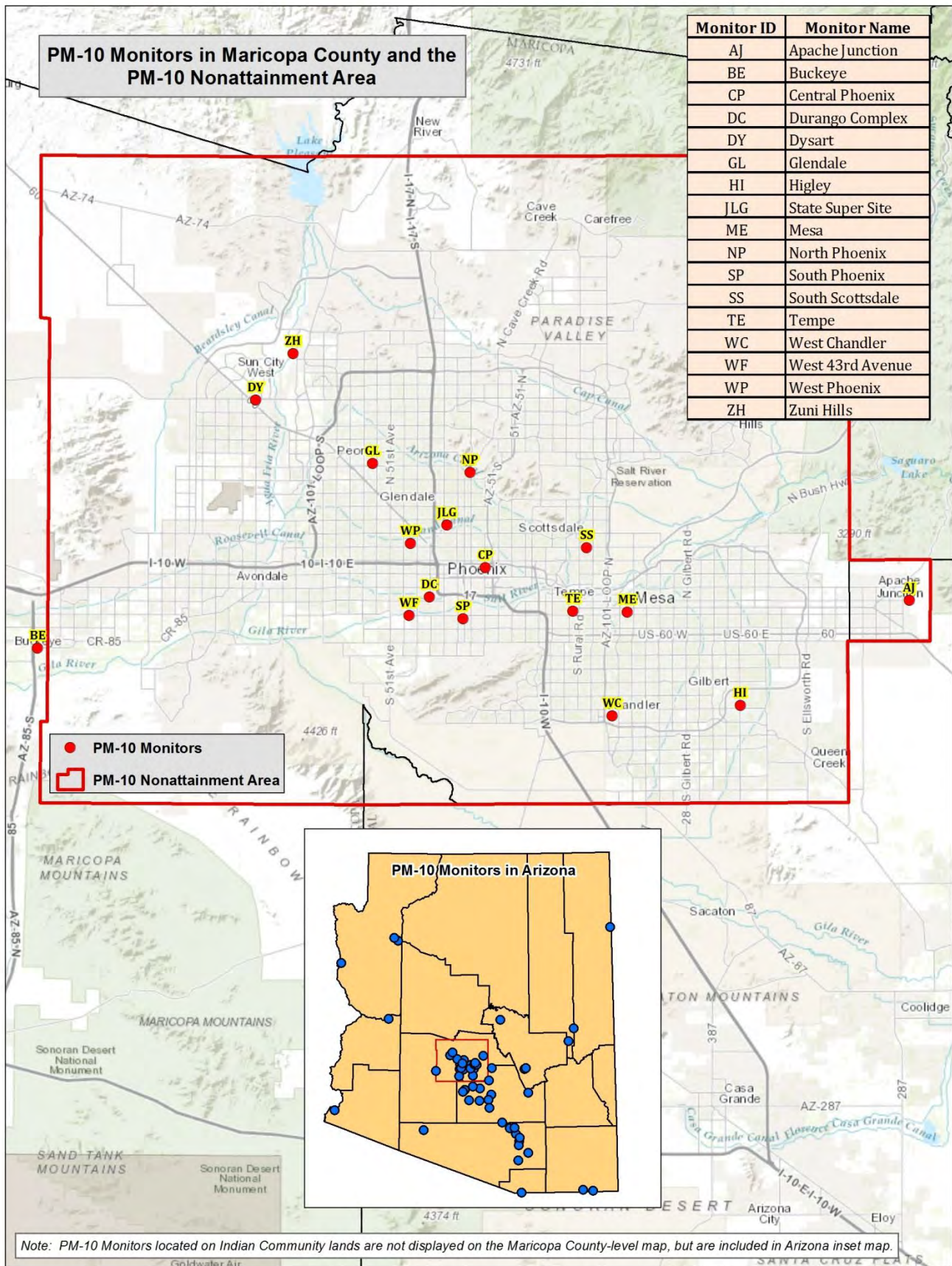


Figure 2-1. Maricopa County PM₁₀ nonattainment area geographic setting and PM₁₀ monitor locations.

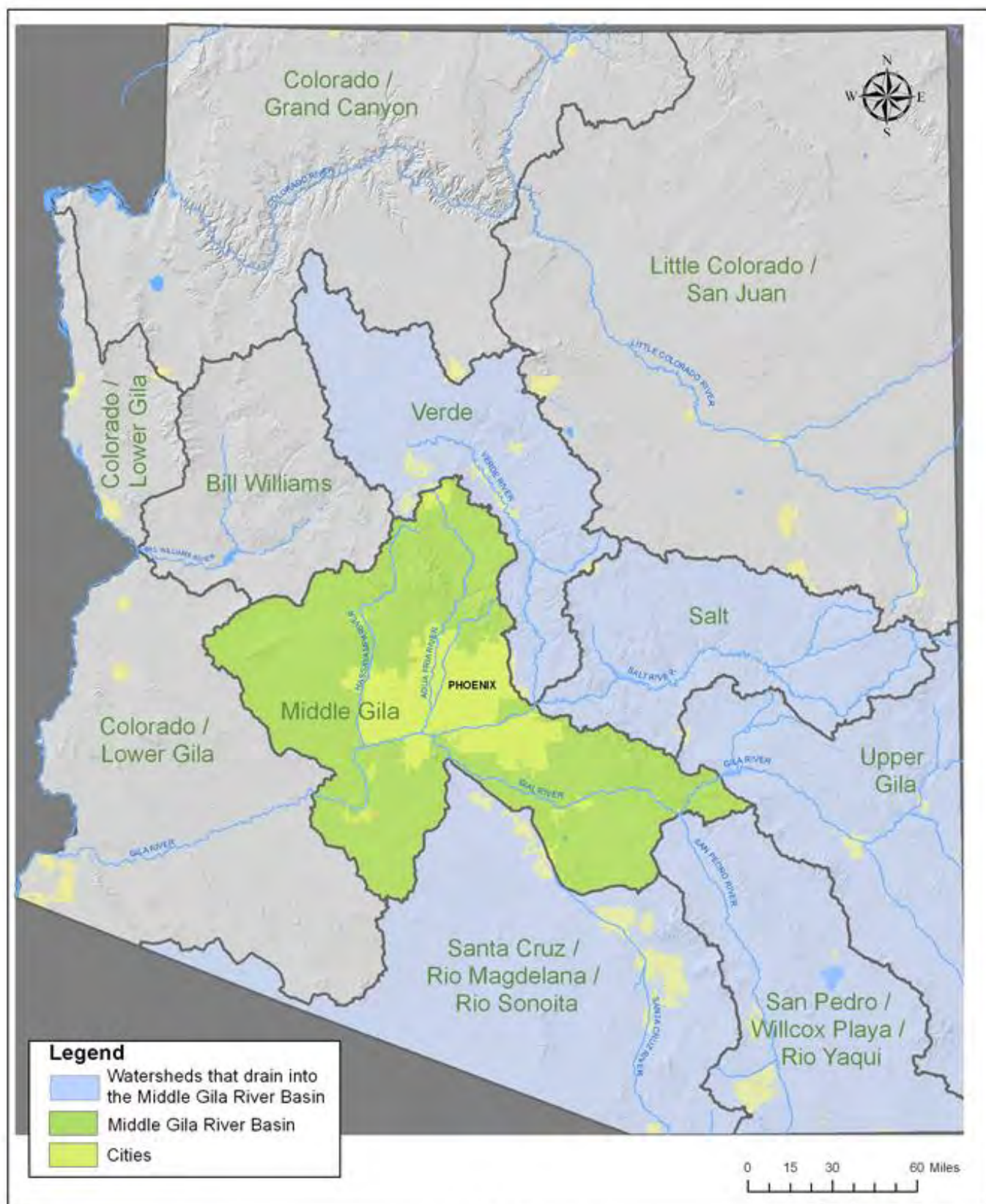


Figure 2-2. Drainage basins of the State of Arizona.

Climate

The Maricopa County PM₁₀ nonattainment area has an arid climate, with very hot summers and temperate winters. The average summer high temperature is among the hottest of any populated area in the United States. The temperature reaches or exceeds 100°F an average of 110 days during the year and highs top 110°F an average of 18 days during the year. The area receives an average of 7.66 inches of rain per year.

Precipitation is sparse during the first part of the summer, but the influx of monsoonal moisture, which generally begins in early July and lasts until mid-September, raises humidity levels and can cause heavy localized precipitation and flooding. Although thunderstorms are possible at any time of the year, they are most common during the monsoon season from July to mid-September as humid air is advected from the Gulf of California, Gulf of Mexico, and large thunderstorm complexes from the Sierra Madre Occidental Mountains in Mexico. This influx in moisture, combined with intense solar heating, often creates a very unstable environment that is ripe for thunderstorm development. These thunderstorms can bring strong winds and blowing dust, large hail, and heavy rain. Dust storms associated with these thunderstorms typically occur in the early part of the monsoon season (July) before soaking rains help keep soil particles bound to one another. However, depending on the amount of precipitation received during the monsoon season, extremely hot temperatures act to dry out the surface quickly, and dust storms can occur at any time. During the December through March period, winter storms moving inland from the Pacific Ocean can bring strong winds, blowing dust and significant rains throughout Arizona. This December – March time period, and July – August time period are typically the wettest parts of the year. Meanwhile, a distinct dry season occurs during the period April through June for the nonattainment area and the rest of Arizona. While these weather patterns describe the general climatology for the nonattainment area over a long period of time, the area and the entire state of Arizona is also prone to a high degree of variability in these weather patterns from year to year.

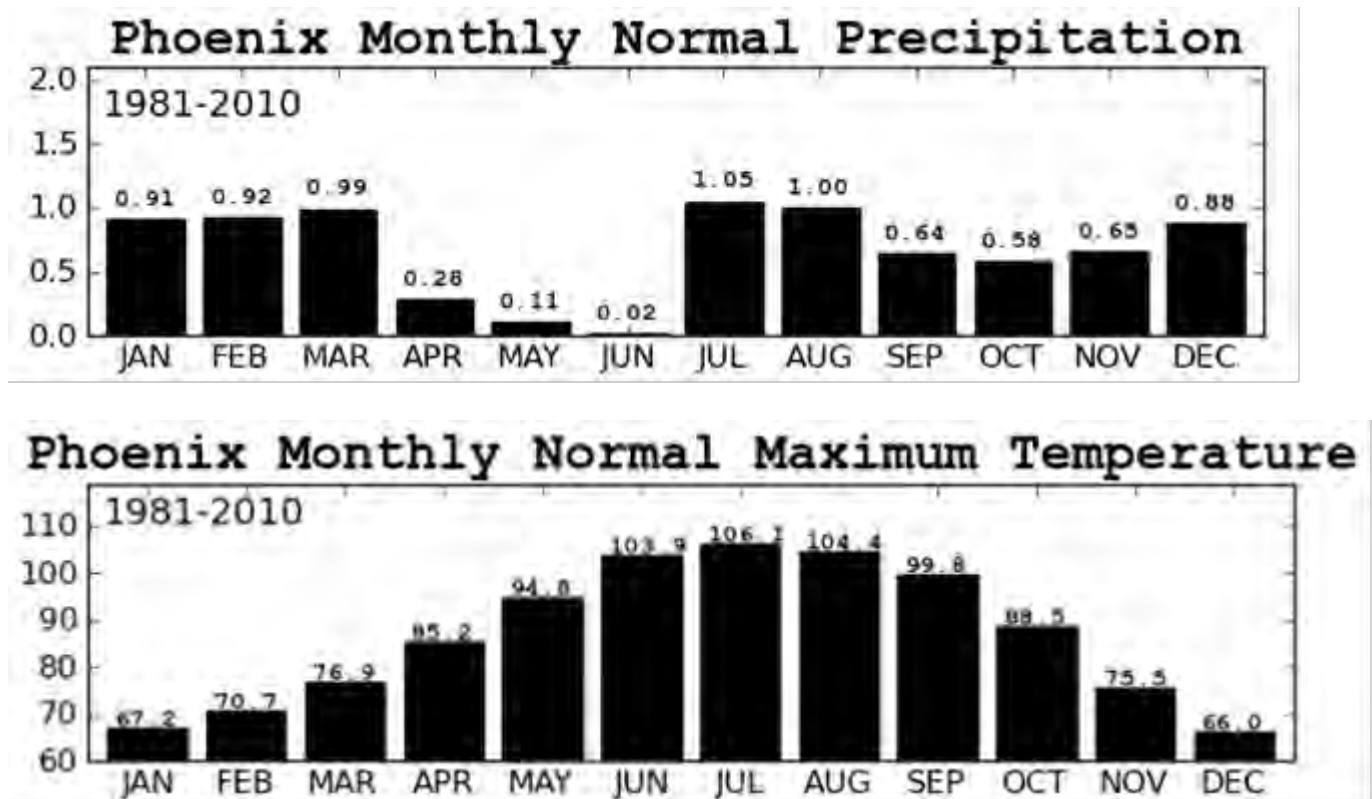


Figure 2-3 Phoenix monthly precipitation (top) and maximum temperature (bottom) climatology (source: National Weather Service).

Monsoon Season High Wind Dust Event Summary

The North American Monsoon is a shift in wind patterns in the summer which occurs as Mexico and the southwest U.S. warm under intense solar heating. As this happens, low level moisture is transported primarily from the Gulf of California and eastern Pacific Ocean into the southwestern U.S. Mid and upper level moisture is also transported into the region, mainly from the Gulf of Mexico by easterly winds aloft. This combination causes a distinct rainy season over large portions of western North America, which develops rather quickly and sometimes dramatically. There are usually distinct “burst” periods of heavy rain during the monsoon, and “break” periods with little or no rain. Even during active monsoon periods, some areas can go without receiving any significant precipitation while other nearby areas experience heavy rains and flooding.

In addition to bringing precipitation, active thunderstorms can produce downbursts, or sometimes more concentrated and severe microbursts, which are rapidly descending bursts of air spreading away from the thunderstorm clouds. These downward bursts of air hit the ground and then disperse away from the storms as areas of outflow. These outflow boundaries from the thunderstorms can generate large walls of dust, sometimes called haboobs, and transport that dust for long distances from the initiating thunderstorms (see Figure 2–4).

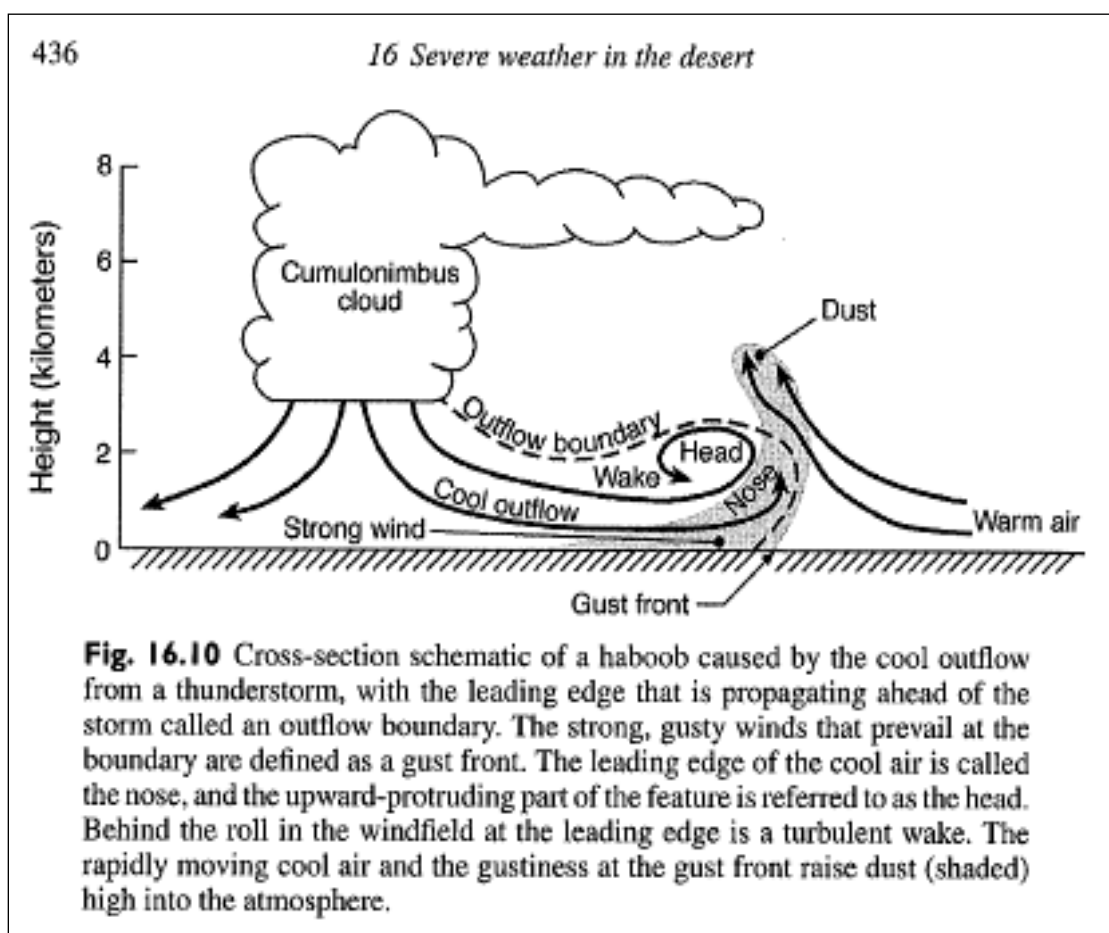


Figure 2-4. Cross-section of a thunderstorm creating an outflow boundary and haboob (Desert Meteorology. Thomas T. Warner. 2004.)

According to the National Weather Service (NWS), a strong evening thunderstorm outflow materialized on September 27, 2016 over the west-central desert of Pinal County, sending significant blowing dust northward into the Maricopa County PM₁₀ nonattainment area. In response, The NWS issued a dust blowing dust advisory for the greater Phoenix area and northwest and north-central Pinal County at 6:08 PM. The advisories predicted wind gusts up to 40 mph and localized visibilities falling below one mile. Sustained winds of 25 mph and gusts of 41 mph were recorded near the source area (Casa Grande Airport) of the thunderstorm outflow (See Appendix B). The blowing dust moved quickly through western Pinal County and into the Maricopa County PM₁₀ nonattainment area on the thunderstorm outflow, raising PM₁₀ concentrations at monitors in the nonattainment area and in Pinal County. The outflow winds died down after reaching the core of the greater Phoenix area, leaving the windblown dust trapped and suspended in the air overnight and into the morning hours of September 28, 2016, ultimately causing exceedances on both September 27 and September 28, 2016.

PM₁₀ concentrations in the nonattainment area from the outflow-generated windblown dust were densest at the South Phoenix monitor peaking at 7:00 PM with a five-minute concentration of 2,860 µg/m³. Concentrations were high throughout the central portion of the nonattainment area where the outflow winds initially transported the windblown dust and then left the dust suspended for several hours afterwards under calm, late-evening and early-morning conditions. The windblown dust from the thunderstorm outflow caused the Glendale and JLG Supersite monitors to exceed on September 27, 2016, and the Glendale monitor to exceed on September 28, 2016. Several other monitors in the central portion of the nonattainment area nearly exceeded as well on September 27-28, 2016 (see Table 2–1).

Visibility readings in synch with the passage of the dust storm outflow were reported to be as low as 1.0 mile at the Sky Harbor International Airport in the nonattainment area by the NWS. Visibilities remained reduced throughout the evening and into the early morning as the suspended windblown dust settled in a haze over the central portion of the nonattainment area. The Deer Valley Airport reported visibilities in the range of 2.5 to 6.0 miles from 7:53 PM on September 27 to 12:53 AM on September 28, 2016, demonstrating the persistence in haze from the windblown dust after the outflow winds had ceased.

The source area of the windblown dust is identified as the desert of west-central Pinal County (see Figures 3–5 and 3–6). While the primary source area is identified as the natural desert areas of west-central Pinal County, sustained wind speeds in the source area of 25 mph, with gusts as high as 41 mph, are sufficient to overwhelm any controls on anthropogenic sources that may be present in the source area. Additionally, while the outflow-generated winds were strong enough to transport windblown dust into the Maricopa County PM₁₀ nonattainment area, wind speeds had started to subside as the outflow reached the nonattainment area, making it unlikely that any significant windblown dust from anthropogenic sources within the Maricopa County PM₁₀ nonattainment area contributed to the exceedances.

As seen in Figure 2–5, moderate drought conditions throughout Maricopa and Pinal counties likely exacerbated the amount of dust the thunderstorm outflow was able to entrain. No precipitation associated with the thunderstorm outflow was recorded at any PM₁₀ nonattainment area NWS stations after the dust storm had passed through the nonattainment area.

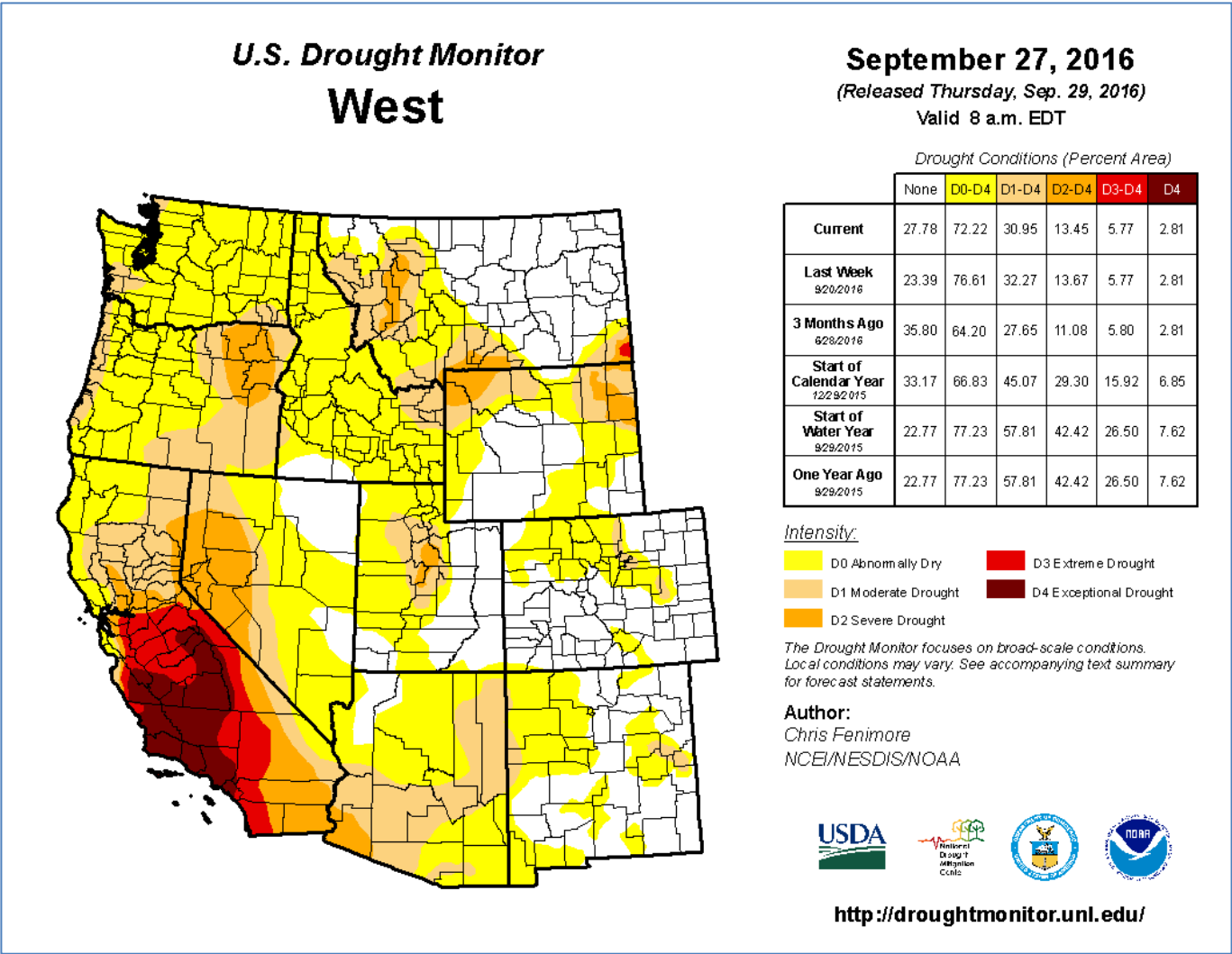


Figure 2-5. Western states drought monitor as of September 27, 2016.

As a summary of the PM₁₀ concentrations during the event, Table 2–1 contains PM₁₀ concentration data at Maricopa County and nonattainment area monitors from September 20 – October 5, 2016, indicating the high levels of PM₁₀ seen on September 27-28, 2016 as compared to the prior and following week. Figure 2–6 displays those same 24-hour average PM₁₀ concentrations while Figure 2–7 contains the diurnal pattern of PM₁₀ at the Maricopa County and PM₁₀ nonattainment area monitors on September 27-28, 2016. Lastly, Figures 2–8 and 2–9 displays hourly average PM₁₀ concentrations, maximum hourly 5-minute wind speeds, and maximum hourly gusts as recorded at the exceeding Glendale and JLG Supersite monitors.

Table 2-1. 24-Hour Average PM₁₀ Concentrations (µg/m³) at Maricopa County and PM₁₀ Nonattainment Area Monitors on September 20-October 5, 2016.

| Monitor | Sept 20 | Sept 21 | Sept 22 | Sept 23 | Sept 24 | Sept 25 | Sept 26 | Sept 27 | Sept 28 | Sept 29 | Sept 30 | Oct 1 | Oct 2 | Oct 3 | Oct 4 | Oct 5 |
|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------|-------|-------|-------|-------|
| Apache Junction | 22 | 19 | 13 | 67 | 34 | 22 | 31 | 64 | 11 | 6 | 8 | 14 | 13 | 12 | 22 | 21 |
| Buckeye | 44 | 31 | 13 | 93 | 30 | 20 | 77 | 36 | 104 | 25 | 22 | 41 | 20 | 48 | 51 | 66 |
| Central Phoenix | 30 | 28 | 13 | 99 | 35 | 23 | 47 | 102 | 69 | 13 | 13 | 14 | 13 | 25 | 35 | 31 |
| Durango Complex | 25 | 24 | 10 | 77 | 27 | 15 | 39 | 112 | 51 | 14 | 15 | 10 | 8 | 23 | 34 | 37 |
| Dysart | 29 | 22 | 12 | 100 | 30 | 13 | 31 | 77 | 77 | 10 | 10 | 13 | 14 | 27 | 32 | 28 |
| Glendale | 16 | 12 | 5 | 78 | 22 | 10 | 27 | 180 | 161 | 6 | 9 | 12 | 8 | 23 | 24 | 20 |
| JLG Supersite | 27 | NA | NA | NA | 36 | 15 | 36 | 223 | 110 | 14 | 13 | 16 | 12 | 28 | 33 | 29 |
| Mesa | 17 | 14 | 8 | 74 | 24 | 9 | 40 | 48 | 52 | 8 | 7 | 9 | 8 | 18 | 22 | 20 |
| North Phoenix | 17 | 15 | 6 | 70 | 22 | 8 | 28 | 141 | 76 | 9 | 8 | 10 | 9 | 14 | 21 | 20 |
| South Phoenix | 20 | 17 | 9 | 80 | 30 | 18 | 29 | 54 | 27 | 14 | 11 | 13 | 9 | 21 | 26 | 26 |
| South Scottsdale | 25 | 22 | 12 | 92 | 30 | 13 | 46 | 113 | 64 | 12 | 13 | 15 | 14 | 21 | 29 | 29 |
| Tempe | 15 | 13 | 7 | 59 | 21 | 12 | 24 | 67 | 34 | 7 | 6 | 10 | 7 | 14 | 18 | 19 |
| West 43rd Avenue | 42 | 35 | 29 | 98 | 37 | 22 | 53 | 118 | 63 | 27 | 24 | 22 | 14 | 39 | 47 | 41 |
| West Chandler | 26 | 22 | 13 | 76 | 39 | 17 | 55 | 44 | 23 | 12 | 12 | 13 | 18 | 16 | 27 | 24 |
| West Phoenix | 20 | 20 | 8 | 79 | 28 | 14 | 31 | 133 | 138 | 11 | 13 | 15 | 11 | 24 | 30 | 27 |
| Zuni Hills | 19 | 19 | | 87 | 30 | 18 | 31 | 138 | 50 | 9 | 10 | 13 | 15 | 20 | 32 | 25 |

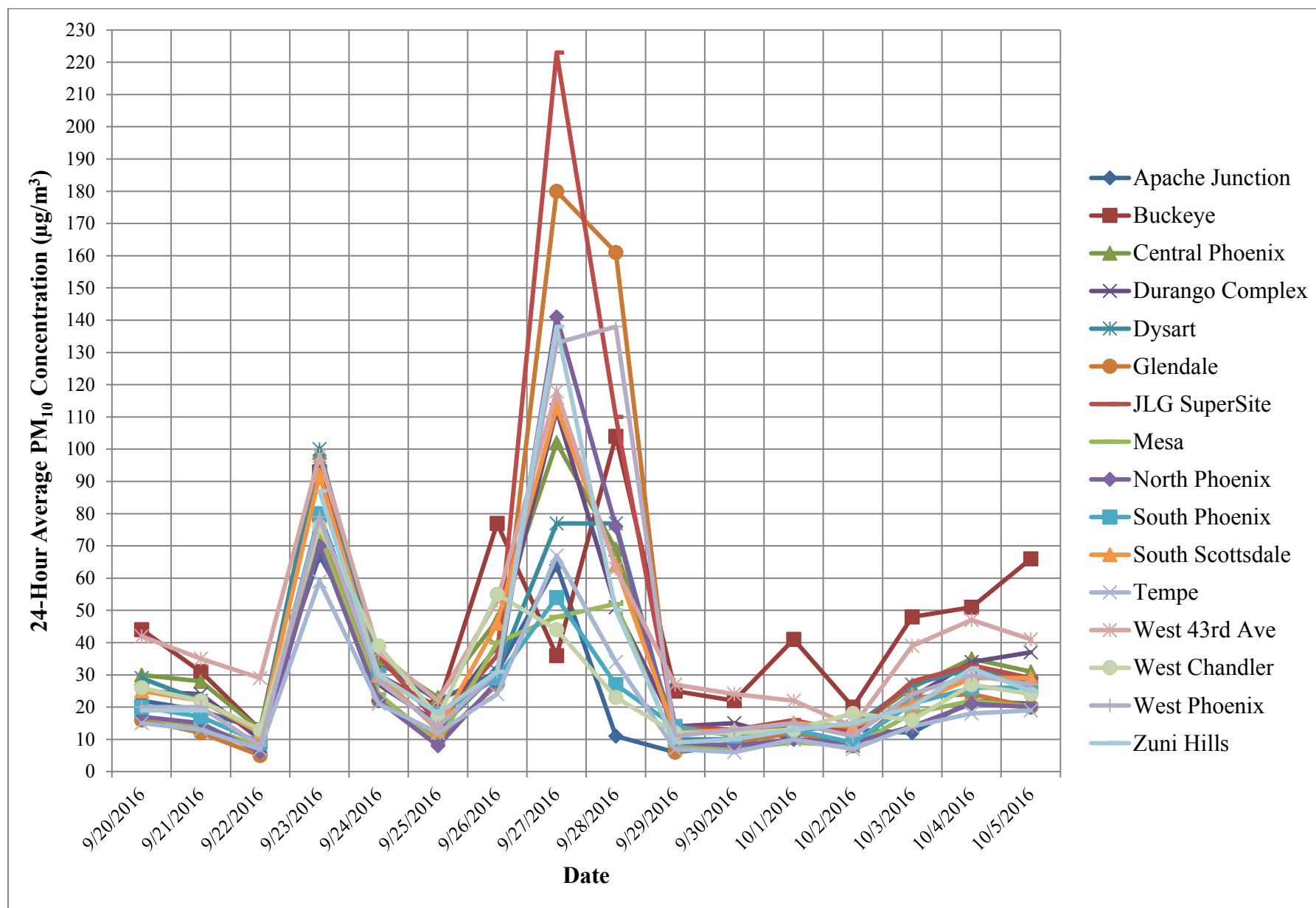


Figure 2-6. 24-hour average PM₁₀ concentrations (µg/m³) at Maricopa County and nonattainment area monitors on September 20-October 5, 2016.

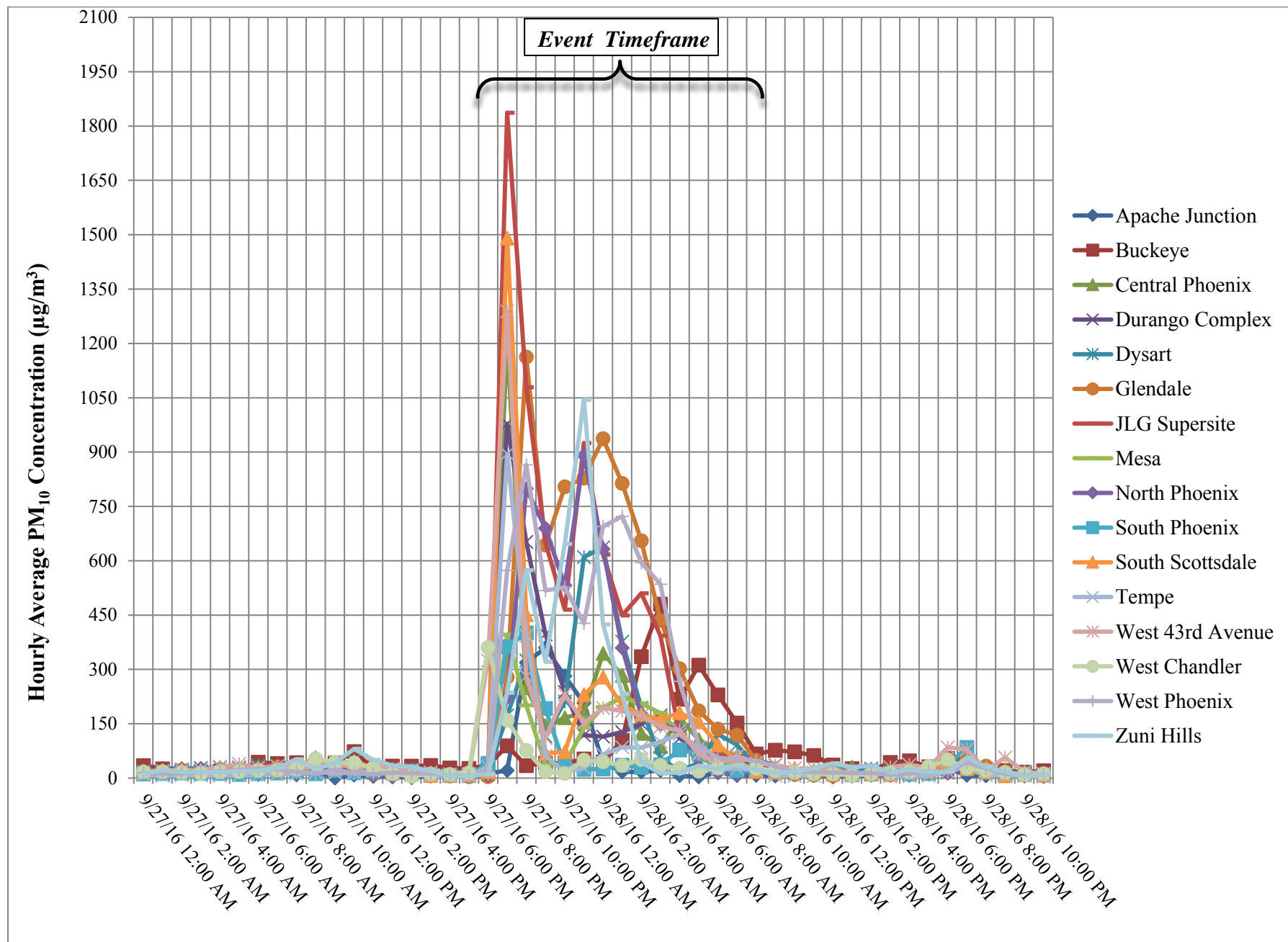


Figure 2-7. Diurnal profile of monitors on September 27-28, 2016.

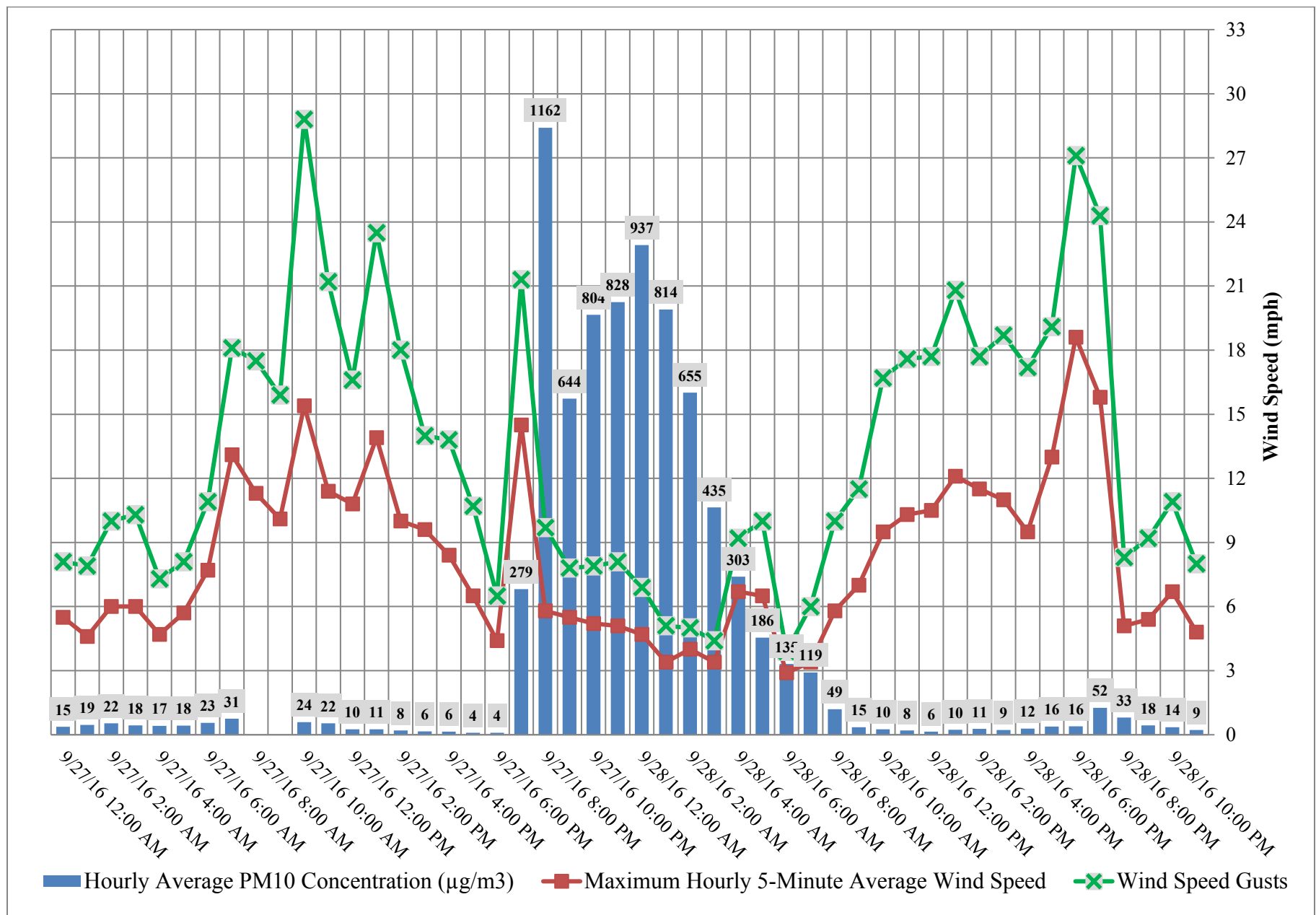


Figure 2-8. Hourly average PM₁₀ concentrations, maximum hourly 5-minute average wind speeds, and maximum hourly gusts as recorded at the exceeding Glendale monitor.

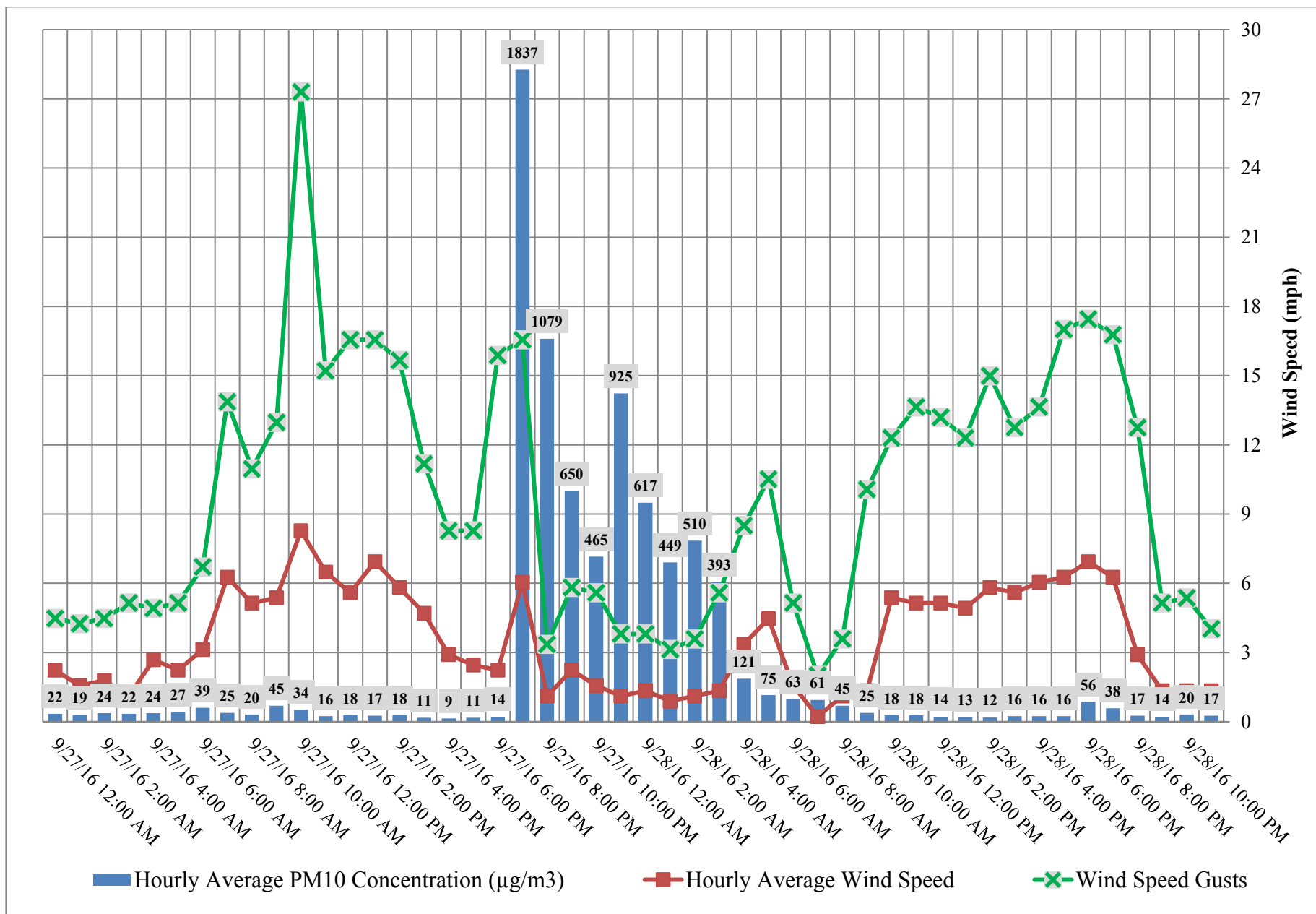


Figure 2-9. Hourly average PM₁₀ concentrations, maximum hourly 5-minute average wind speeds, and maximum hourly gusts as recorded at the exceeding JLG Supersite monitor.

III. CLEAR CAUSAL RELATIONSHIP

Introduction

One of the core statutory elements that must be addressed to exclude a monitored exceedance or violation caused by an exceptional event is a demonstration that the exceptional event “affected air quality in such a way that there exists a clear causal relationship between the event and the monitored exceedance or violation.” The requirement to include this demonstration is codified in 40 CFR Section 50.14(c)(3)(iv)(B). To support the clear causal relationship requirements in 40 CFR Section 50.14(c)(3)(iv)(B), analyses comparing the claimed event-influenced concentration to concentrations at the same monitoring site at other times are required as stated in 40 CFR Section 50.14(c)(3)(iv)(C).

Additionally, specific to high wind dust events, the preamble to the revised exceptional events rule states that “EPA expects air agencies to provide relevant wind data...showing how the observed sustained wind speed compares to the established high wind threshold and demonstrates a relationship between the sustained wind speeds and measured PM concentrations at a particular monitoring location”. Demonstrations covering all of the required elements of a clear causal relationship are presented in the sections below.

Comparison of High Wind Dust Event Concentrations with Historical Concentrations

In Table 2 of the preamble to the revised exceptional events rule, EPA includes as guidance seven categories of “historical concentration evidence” that should be addressed in order to meet the requirement in 40 CFR Section 50.14(c)(3)(iv)(C) to provide analyses comparing the claimed event-influenced concentration to concentrations at the same monitoring site at other times. The seven categories listed by EPA and where they are addressed in this documentation are listed below:

1. Compare the concentrations on the claimed event day with past historical data (included in Figure 3–1 and 3–2).
2. Demonstrate spatial and/or temporal variability of the pollutant of interest in the area (included in Figures 3–5 through 3–37 and Figure 2-6).
3. Determine percentile ranking: 99th percentile for all exceedances at both monitors (based upon five years of data, September 27, 2011 – September 28, 2016).
4. Plot annual time series to show the range of “normal” values (included in Figures 3–1 and 3–2).
5. Identify all “high” values in all plots (included in Figures 3–1 and 3–2).
6. Identify historical trends (optional, included in Figures 3–1 and 3–2).
7. Identify diurnal or seasonal patterns (included in Figures 3–1 through 3–4).

The bulk of the seven categories listed above are addressed in Figures 3–1 and 3–2. Figures 3–1 and 3–2 include all 24-hour average PM₁₀ concentrations at the exceeding Glendale and JLG Supersite monitors from January 1, 2011 through December 31, 2016. This period includes the most recent five calendar years of concentration data at the exceeding monitoring sites, as recommended by EPA in the preamble to the revised exceptional events rule. Within the time period presented, Figures 3–1 and 3–2 identify all days that have been flagged as high wind dust events (including the concurrence status of those days by EPA) and all exceedance days.

All exceedances in Figures 3–1 and 3–2 have been identified as high wind dust events. Figures 3–1 and 3–2 generally indicates that high wind dust events normally occur in spring and summer (when dry cold fronts and the summer monsoon season are most active), but may occur at any time. The high wind dust events are relatively rare occurring on 11 days out of 2,192, or 0.5% of the time at the Glendale monitor. High wind dust events at the JLG Supersite monitor occur on 9 days out of 2,192, or 0.4% of the time. The specific percentile ranking of the high wind dust event 24-hour average PM₁₀ concentrations are in the 99th percentile on both exceedance days and at both exceeding monitors, based upon five years of data (September 27, 2011 – September 28, 2016).

While not specifically indicated in Figures 3–1 and 3–2, it is important to note that some of the other high, but not exceeding PM₁₀ concentrations (75-150 µg/m³) at the Glendale and JLG Supersite monitors, occurred on days when high wind dust events nearly caused an exceedance, or on days when high wind dust events caused exceedances at other monitors in the Maricopa County PM₁₀ nonattainment area. Because of the vast size of the nonattainment area, it is rare that a high wind dust event will cause all monitors within the nonattainment area to exceed the PM₁₀ standard. As seen in this high wind dust event, PM₁₀ concentrations were elevated at all nonattainment area monitors within the path of the thunderstorm outflow, particularly at the central nonattainment area monitors (e.g., North Phoenix monitor at 141 µg/m³ on September 27, 2016), but only the Glendale and JLG Supersite monitors exceeded on September 27-28, 2016.

Figures 3–1 and 3–2 also include a linear trend line of the 24-hour average PM₁₀ concentration data at the Glendale and JLG Supersite monitors. The trend line for the Glendale monitor shows a small decline in PM₁₀ concentrations based upon data from January 1, 2011 to December 31, 2016, while the trend line for the JLG Supersite monitor is relatively flat. While the trend lines represent an average of concentration data that can vary significantly from day to day, the trend line does indicate that overall PM₁₀ concentrations at the Glendale and JLG Supersite monitors have been declining or steady through time, despite an increase in population, employment and vehicle traffic throughout the nonattainment area. This is not unexpected given that the Glendale and JLG Supersite monitors are located in developed urban areas, where PM₁₀ concentrations are generally low and well-controlled and common sources of fugitive dust (e.g., natural desert areas, vacant lands) are sparse.

As can be seen in Figures 3–1 and 3–2, there is not a distinct seasonal pattern for PM₁₀, but rather concentrations can vary daily in all seasons. In general terms, wintertime inversion conditions can elevate PM₁₀ on stagnant days in the winter months, and elevated winds particularly during the monsoon season produce the highest overall PM₁₀ concentrations. However, these meteorological conditions are not constant enough to create a definite “season” when PM₁₀ is elevated or suppressed.

Figures 3–3 and 3–4 display the average diurnal patterns of PM₁₀ as observed over 5 years from January 1, 2011 through December 31, 2015 at the Glendale and JLG Supersite monitors. The figures include annual hourly average concentrations, average hourly concentrations in September (the month the event occurred), and the diurnal pattern observed on the event days (September 27-28, 2016). Hourly PM₁₀ concentrations that were flagged in AQS as being the result of an exceptional event have been removed from the averages. As can be seen in the Figures 3–3 and 3–4, there is little difference between the annual hourly averages and the hourly averages in the month of September over the 5 year period. Diurnal emissions on the high wind dust event days (September 27-28, 2016) were very similar to the annual and September averages, except during the hours when windblown dust from the thunderstorm outflow arrived and remained suspended (6pm on September 27, 2016 to 8am on September 28, 2016), providing evidence that no unusual anthropogenic activity was occurring around the exceeding Glendale and JLG Supersite monitors on the high wind dust event days (i.e., no elevated hourly PM₁₀ concentrations during non-event hours on the event days as compared to historical hourly averages).

In addition to the data presented in Figures 3–1 through 3–4, data in Figure 2–6 displays the 24-hour average PM₁₀ concentrations at all nonattainment area monitors a week before and after the high wind dust event on September 27-28, 2016. The non-exceedance peak seen on September 23, 2016 is attributed to long range transport from the passage of a cold front. No other exceedances were recorded the week before or after the event on September 27-28, 2016.

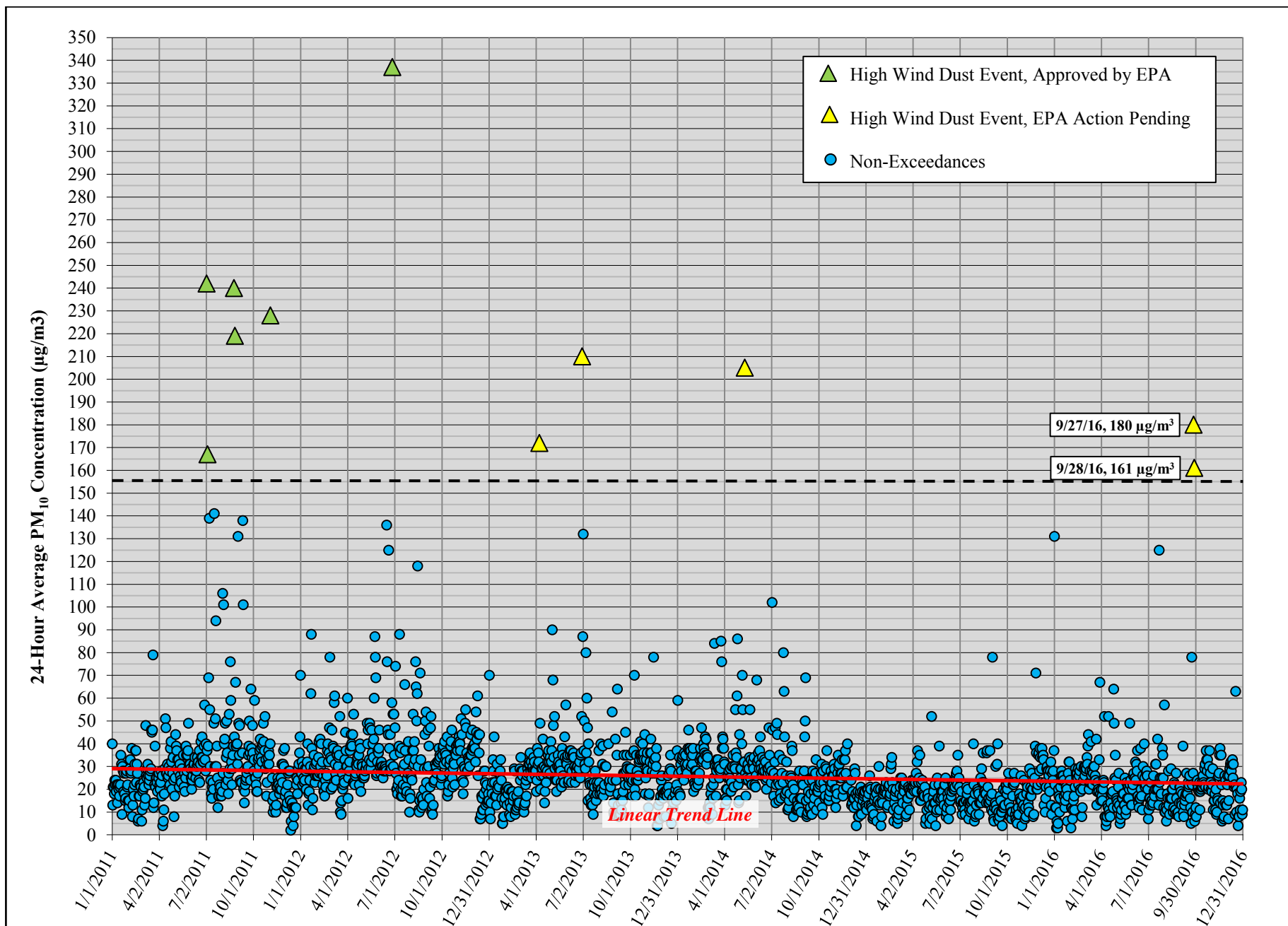


Figure 3-1. Plot of 24-hour average PM₁₀ concentrations at the Glendale monitor, January 2011 – December 2016.

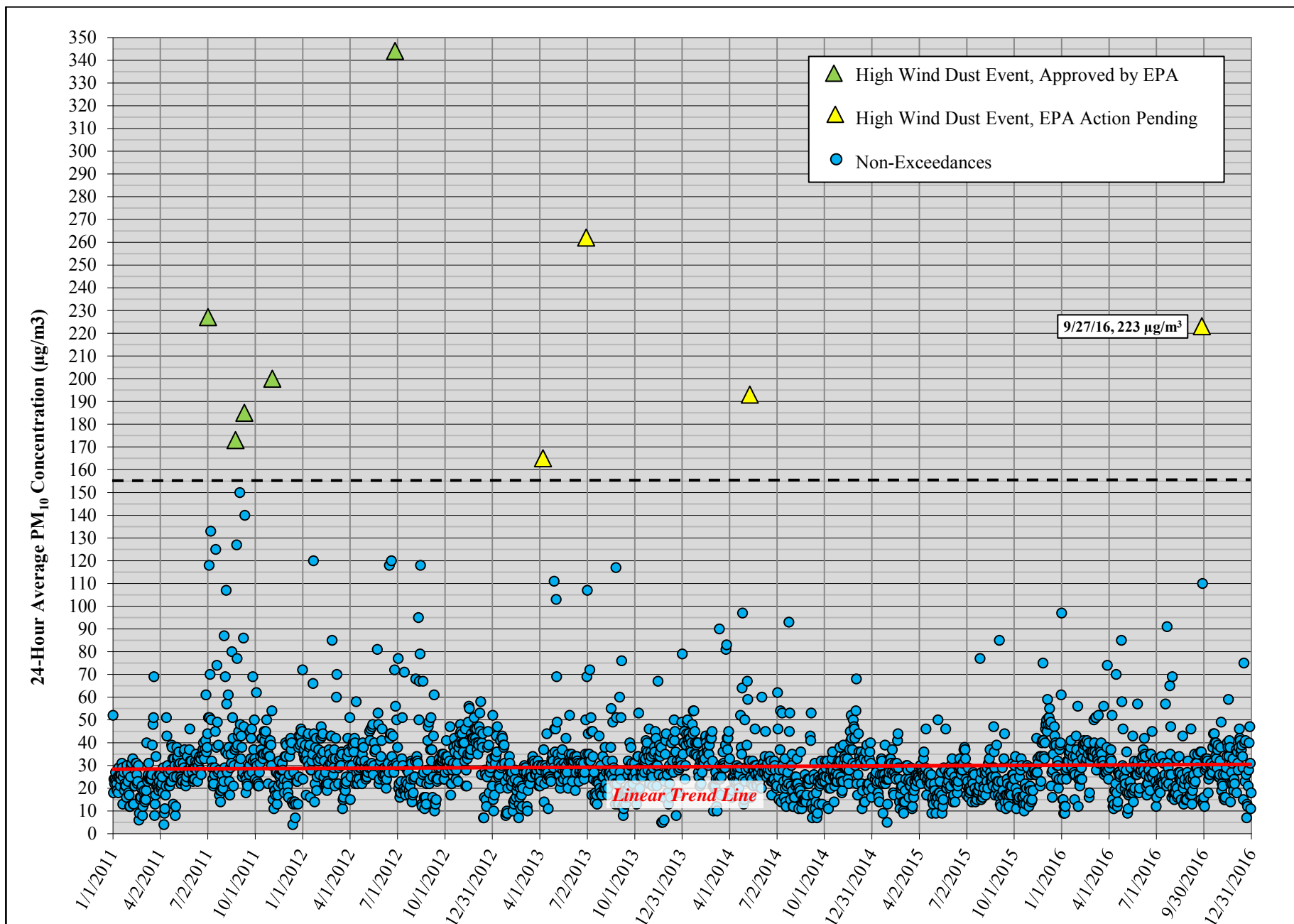


Figure 3-2. Plot of 24-hour average PM₁₀ concentrations at the JLG Supersite monitor, January 2011 – December 2016.

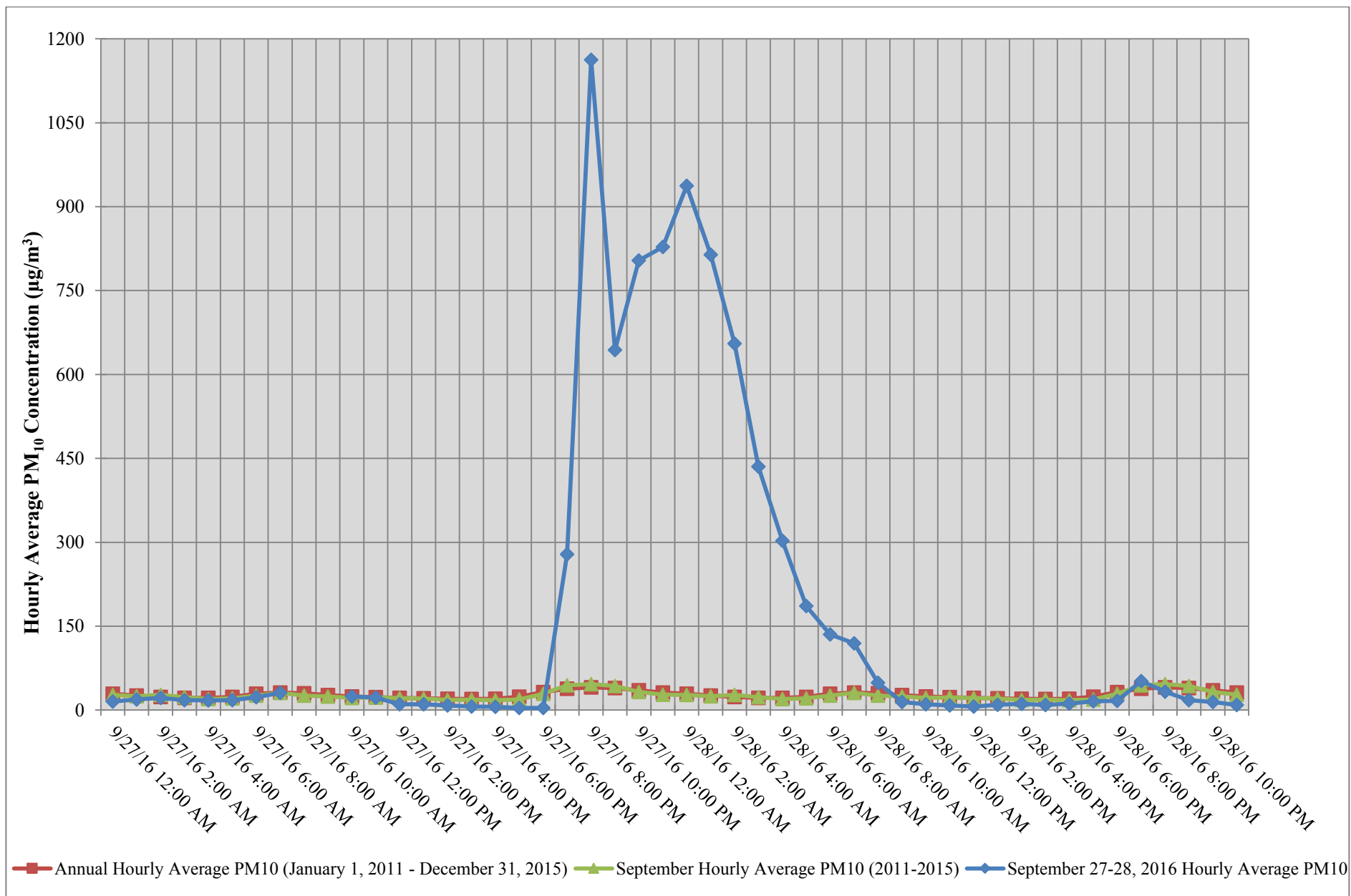


Figure 3-3. Plot of annual hourly average PM₁₀ concentrations (1/1/2011 – 12/31/2015), hourly average PM₁₀ concentrations in September (2011 – 2015), and diurnal PM₁₀ concentrations at the Glendale monitor on the September 27-28, 2016 high wind dust event day.

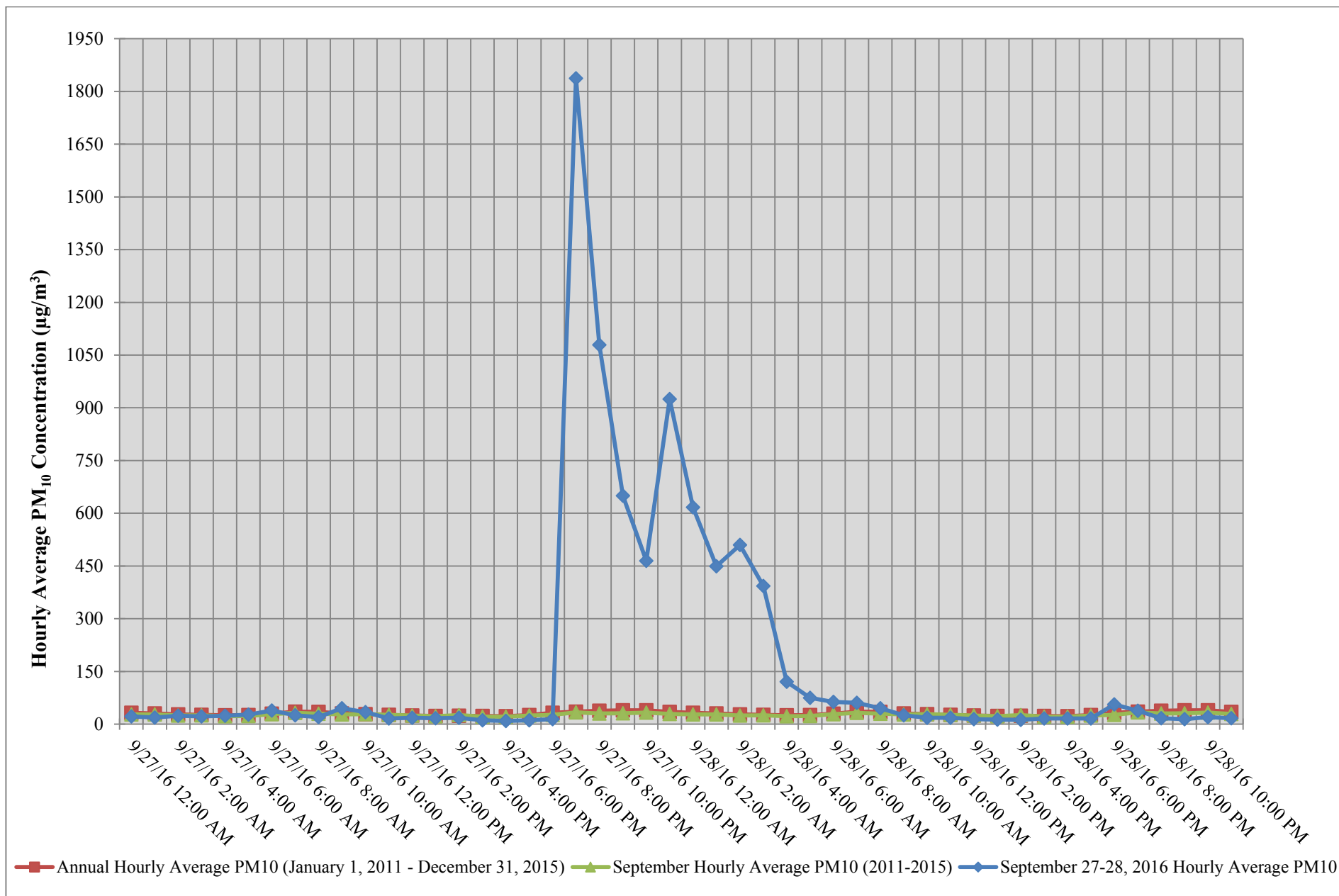


Figure 3-4. Plot of annual hourly average PM₁₀ concentrations (1/1/2011 – 12/31/2015), hourly average PM₁₀ concentrations in September (2011 – 2015), and diurnal PM₁₀ concentrations at the JLG Supersite monitor on the September 27-28, 2016 high wind dust event day.

Chronological and Spatial Presentation of Wind, Visibility, and PM₁₀ Concentration Data During the High Wind Dust Event in the Maricopa County PM₁₀ Nonattainment Area

In addition to the analyses focused on comparison of the high wind dust event PM₁₀ concentration to historical concentrations, Figure 3–5 through 3–37 display the chronological and spatial distribution of wind, visibility and PM₁₀ concentration data throughout the nonattainment area in mapped form. The figures establish a clear causal relationship between elevated PM₁₀ concentrations, elevated wind speeds and reduced visibility in the nonattainment area. The figures also establish the transport of PM₁₀ across the nonattainment area with the thunderstorm outflow winds and the subsequent suspension of windblown dust after the outflow winds died down in the nonattainment area.

In 40 CFR Section 50.14(b)(5)(iii), EPA establishes a default high wind threshold of a sustained wind of 25 mph, as the wind speed necessary to entrain significant amounts of dust from undisturbed, natural areas, as well as disturbed, anthropogenic source areas that are subject to reasonable controls. Sustained winds, as represented in the figures, were recorded at 25 mph, with gusts of 41 mph, near the source area of the thunderstorm outflow, indicating that reasonable controls on anthropogenic sources of windblown dust were overwhelmed and that emissions of dust from natural desert areas would be expected. Although wind speeds decreased as the outflow entered the Maricopa County PM₁₀ nonattainment area, visibility readings and photos make it clear that the winds were still strong enough to transport significant windblown dust into the nonattainment area, causing the exceedances at the Glendale and JLG Supersite monitors. Ironically, had the wind speeds been higher in the nonattainment area, the windblown dust created by the thunderstorm outflow likely would have been transported out of the nonattainment area, instead of becoming suspended overnight, and exceedances at the monitors likely would have been avoided. In summary, the figures make it clear that without the high wind dust event caused by the thunderstorm outflow and the subsequent trapping of suspended windblown dust, there would have been no exceedance at the Glendale and JLG Supersite monitors.

The data displayed in the following figures were gathered from five data sources. All available meteorological and air quality data were used in order to present the most complete story of the event. Table 3–1 displays the types of data used from each agency in creating the maps. Each map in the figures represents the chronological and spatial distribution of wind, visibility and PM₁₀ concentration in a 30-minute period. The figures start with the 5:00-5:30 PM period on September 27, 2016 and end with the 9:00-9:30 AM period on September 28, 2016, covering the arrival, passing and suspension of the thunderstorm outflow-generated windblown dust across the Maricopa County PM₁₀ nonattainment area.

Table 3-1. Data Sets Used in the Creation of Chronological and Spatial Maps.

| Agency | Data Sets |
|--|--|
| Arizona Department of Environmental Quality (ADEQ) | Hourly PM ₁₀ Concentrations, Wind Speed, Wind Direction and Wind Gusts |
| Arizona Meteorological Network (AZMET) | Hourly Wind Speed, Wind Direction and Wind Gusts |
| Maricopa County Air Quality Department (MCAQD) | 5-Minute PM ₁₀ Concentrations, 5-Minute Wind Speed and Wind Direction, and Maximum Hourly Wind Gusts |
| Pinal County Air Quality Control District (PCAQCD) | 5-Minute and Hourly PM ₁₀ Concentrations, 5-Minute and Hourly Wind Speed, Wind Direction and Wind Gusts |
| National Weather Service (NWS) | Point in Time Wind Speed, Wind Direction, Wind Gusts, Visibility, and Radial Velocity Radar |

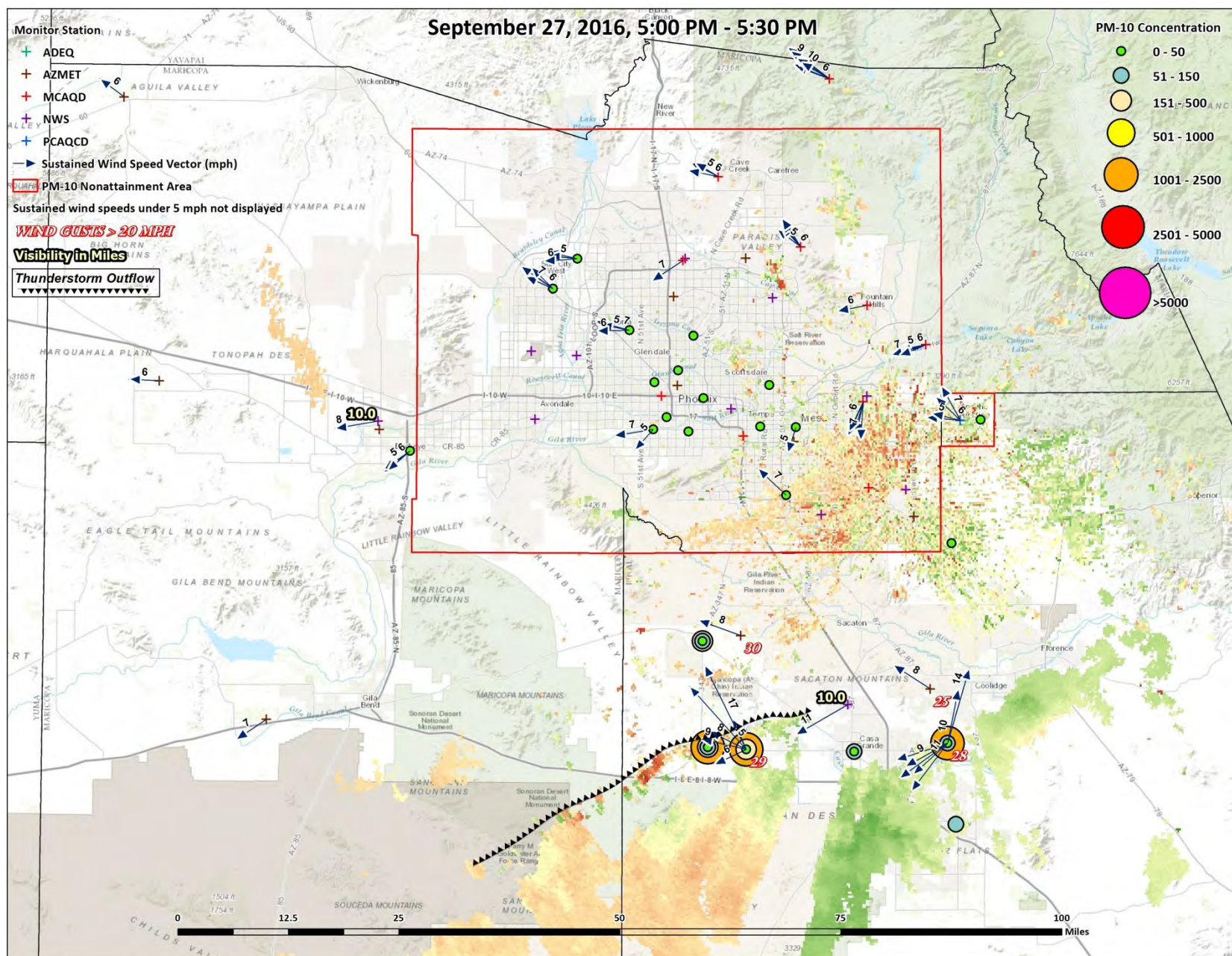


Figure 3-5. September 27, 2016, 5:00 PM – 5:30 PM.

Figure 3-6. September 27, 2016, 5:30 PM – 6:00 PM.

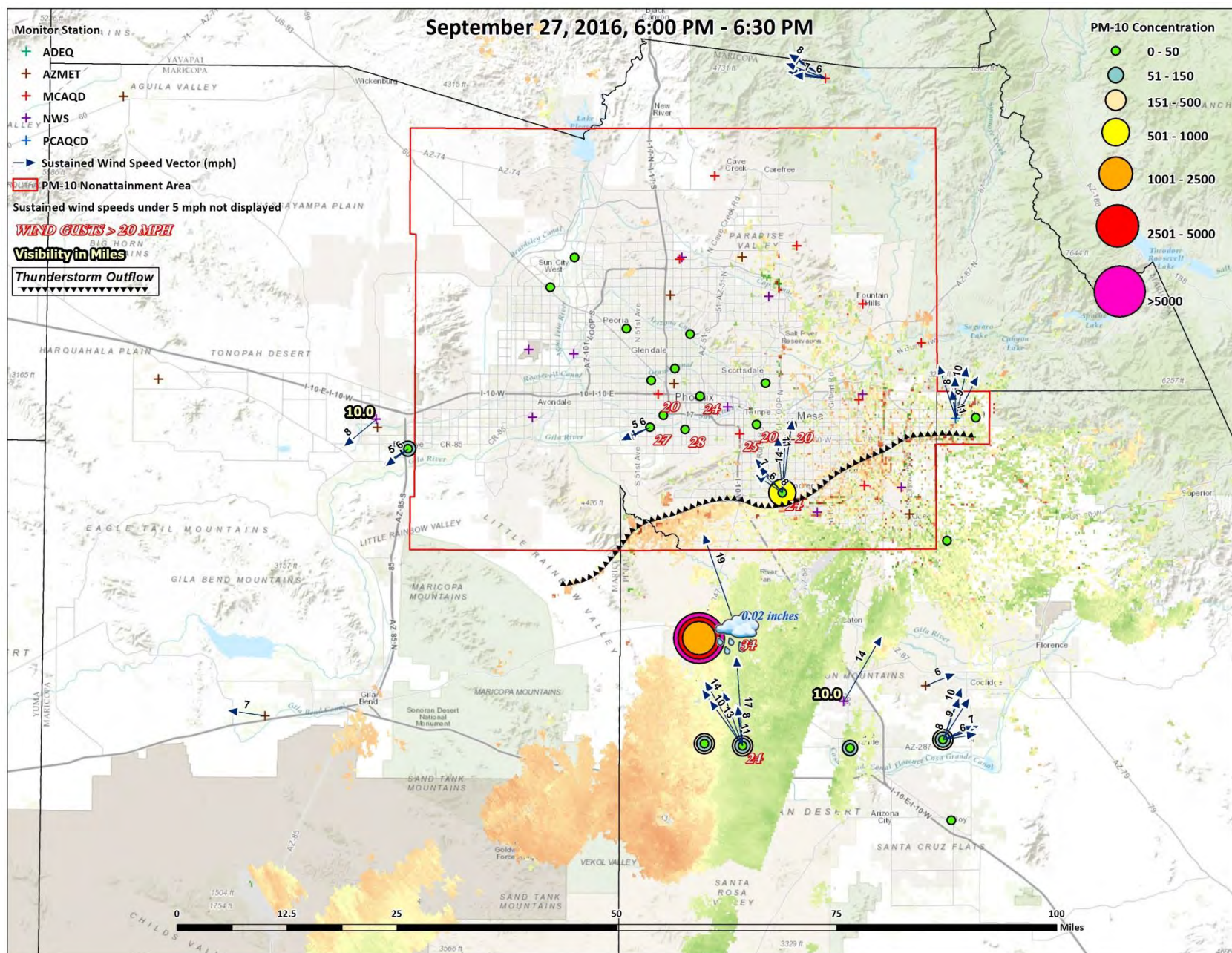


Figure 3-7. September 27, 2016, 6:00 PM – 6:30 PM.

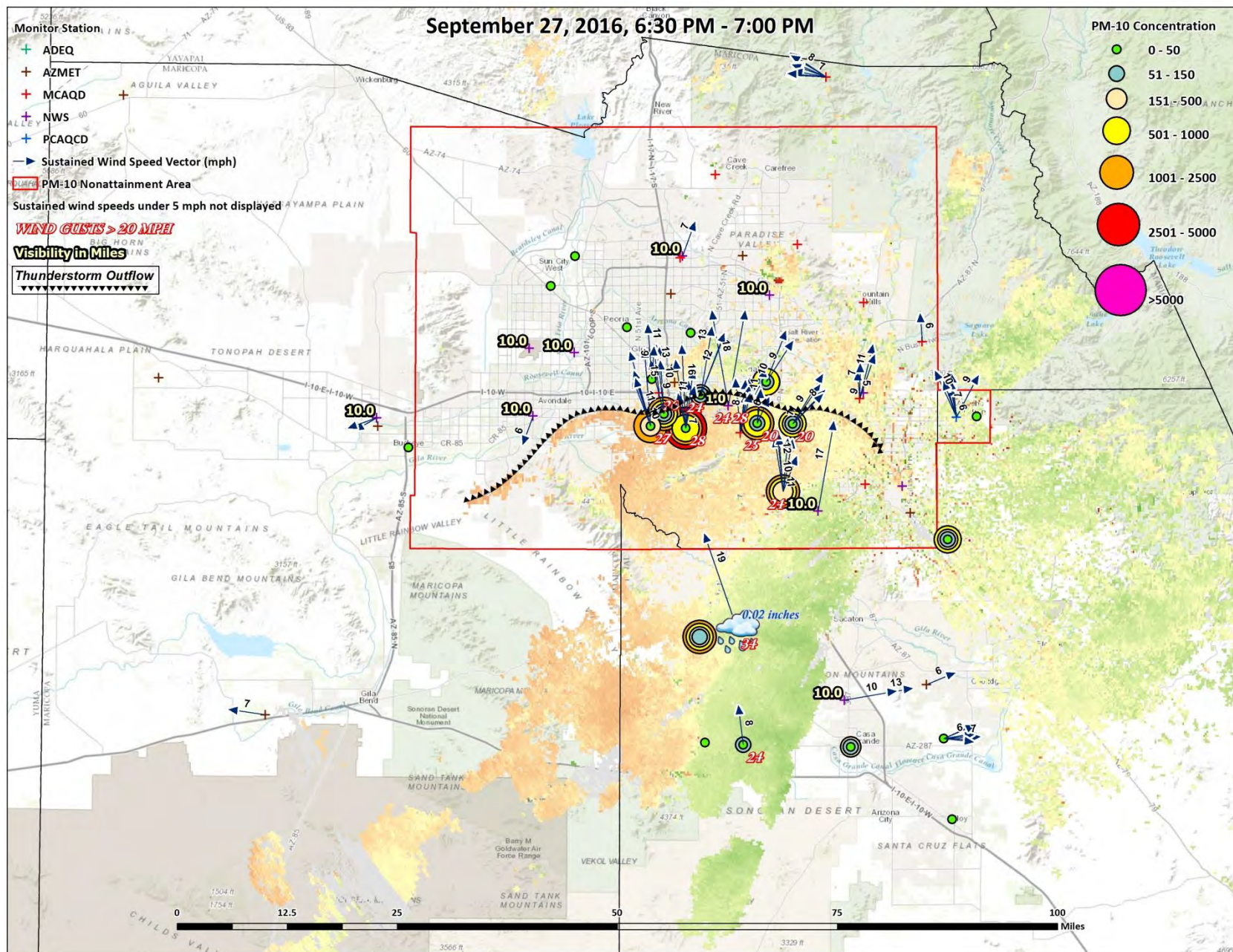


Figure 3-8. September 27, 2016, 6:30 PM – 7:00 PM.

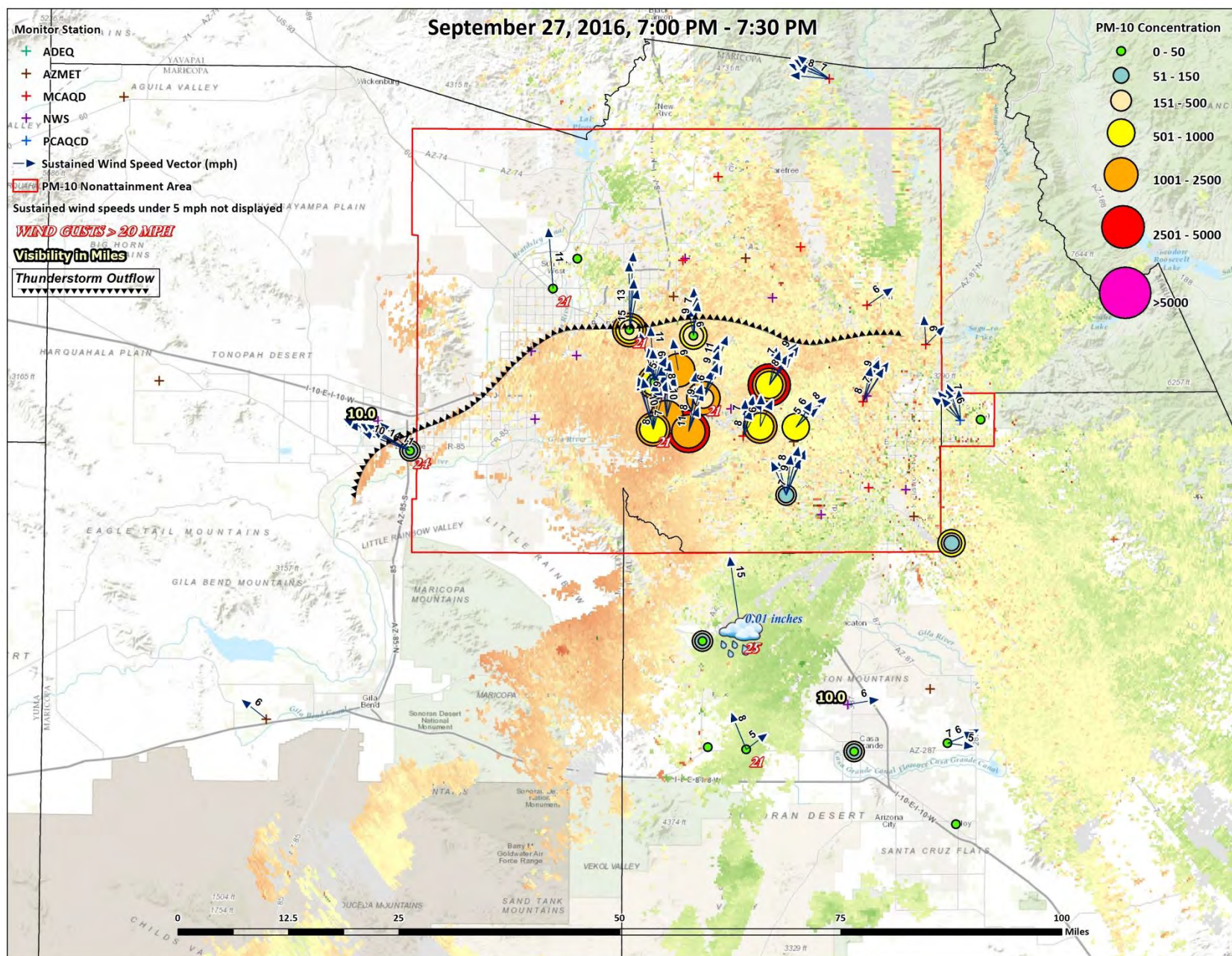


Figure 3-9. September 27, 2016, 7:00 PM – 7:30 PM.

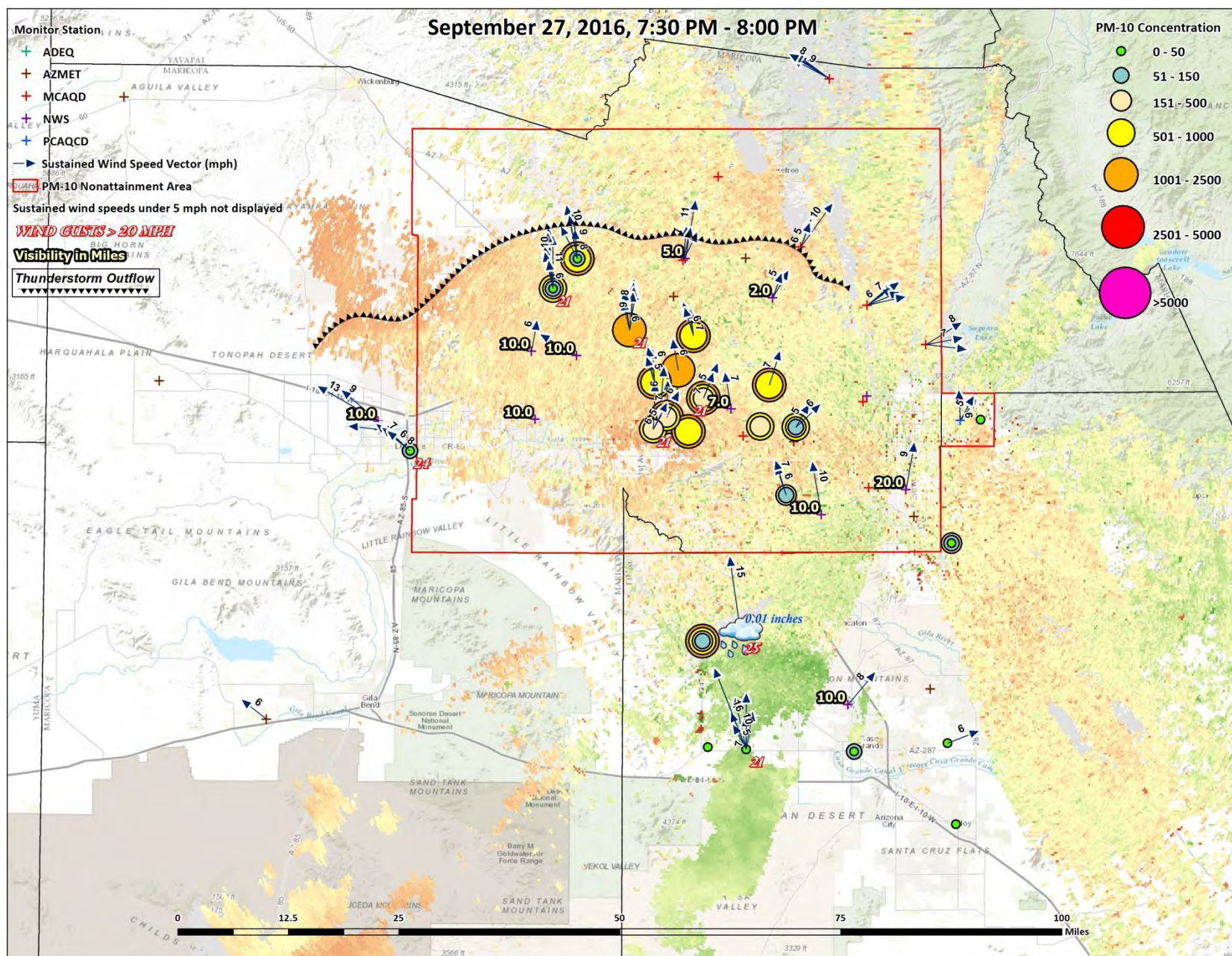


Figure 3-10. September 27, 2016, 7:30 PM – 8:00 PM.

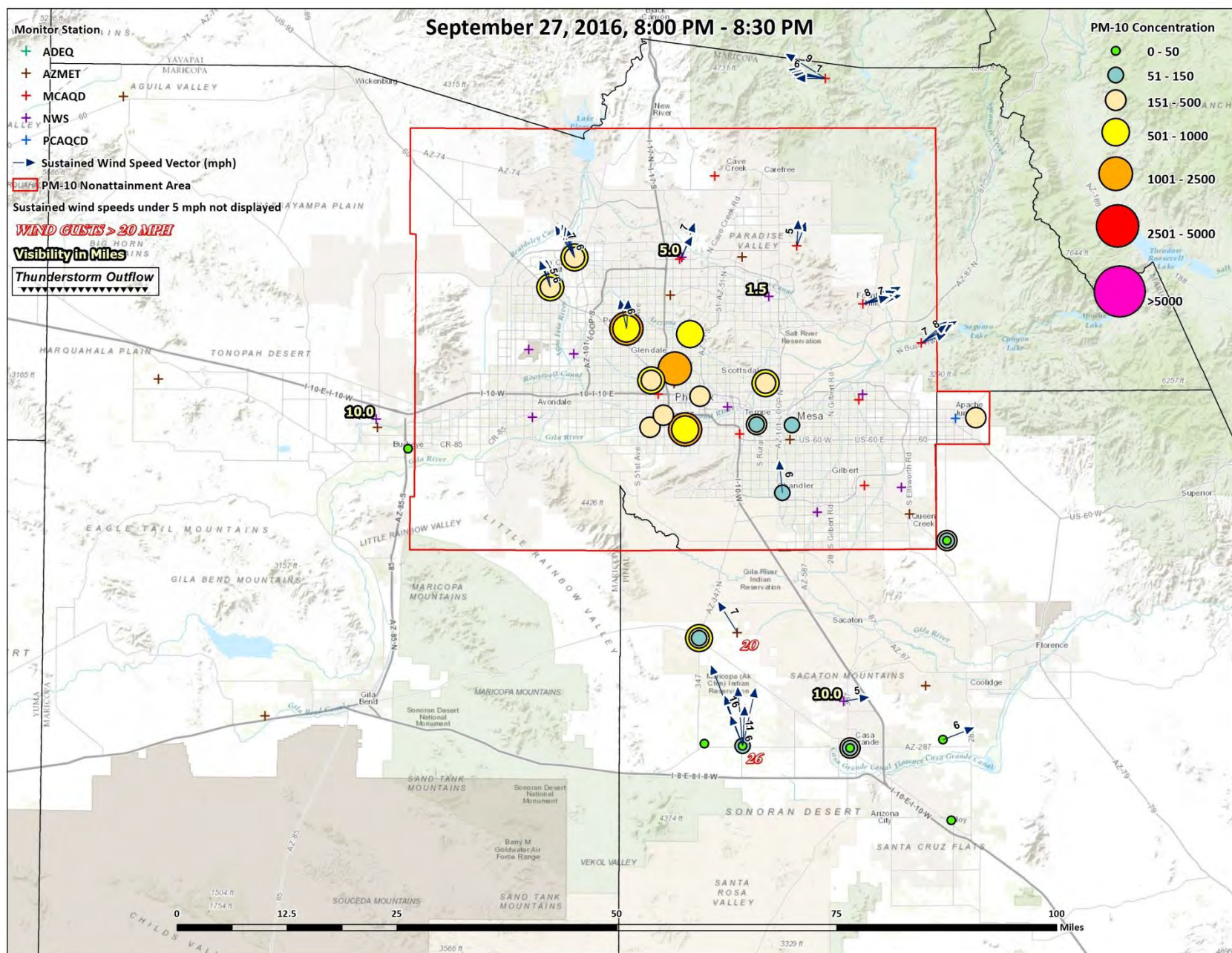
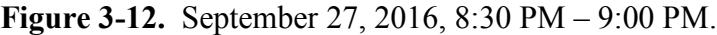


Figure 3-11. September 27, 2016, 8:00 PM – 8:30 PM.



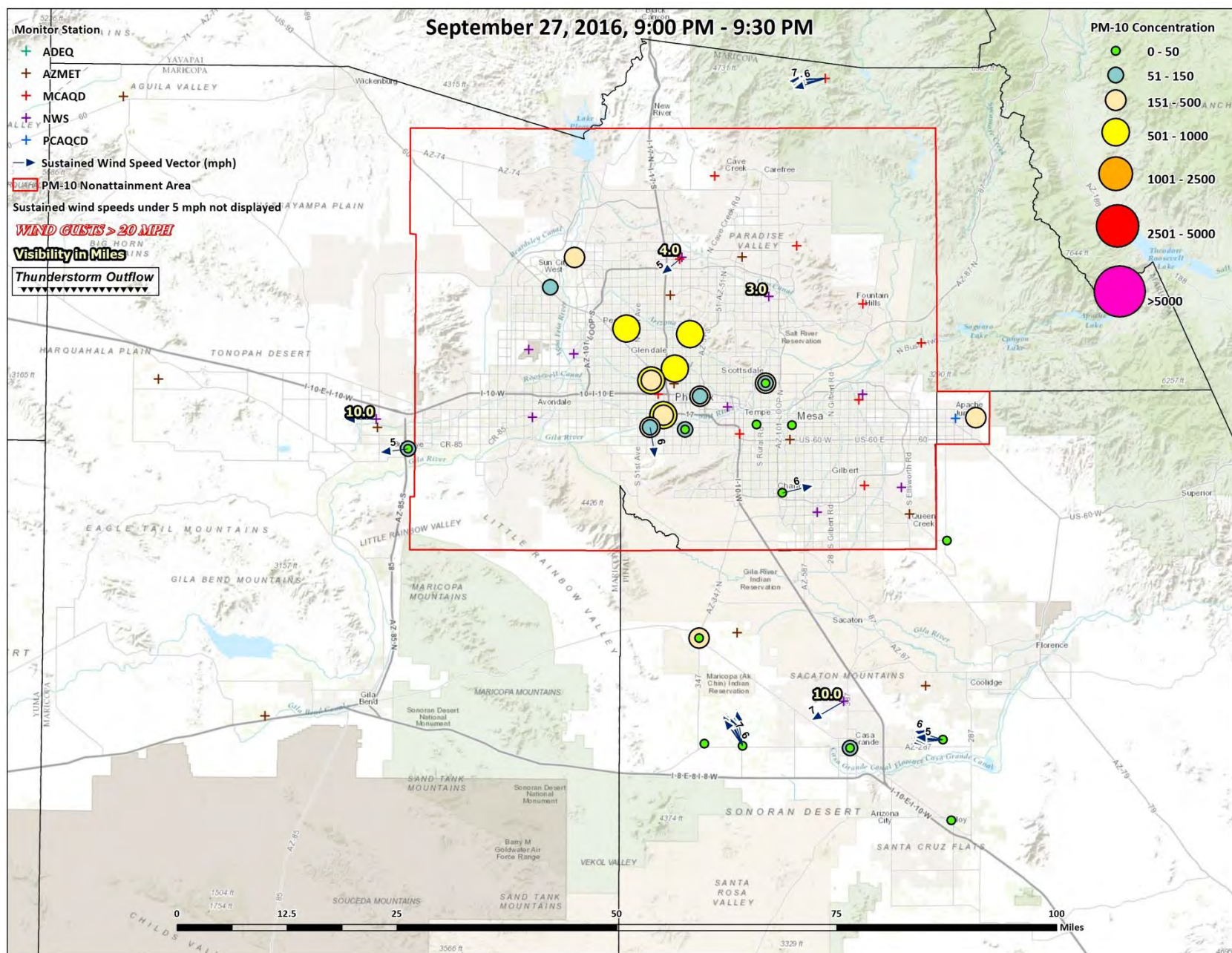


Figure 3-13. September 27, 2016, 9:00 PM – 9:30 PM.

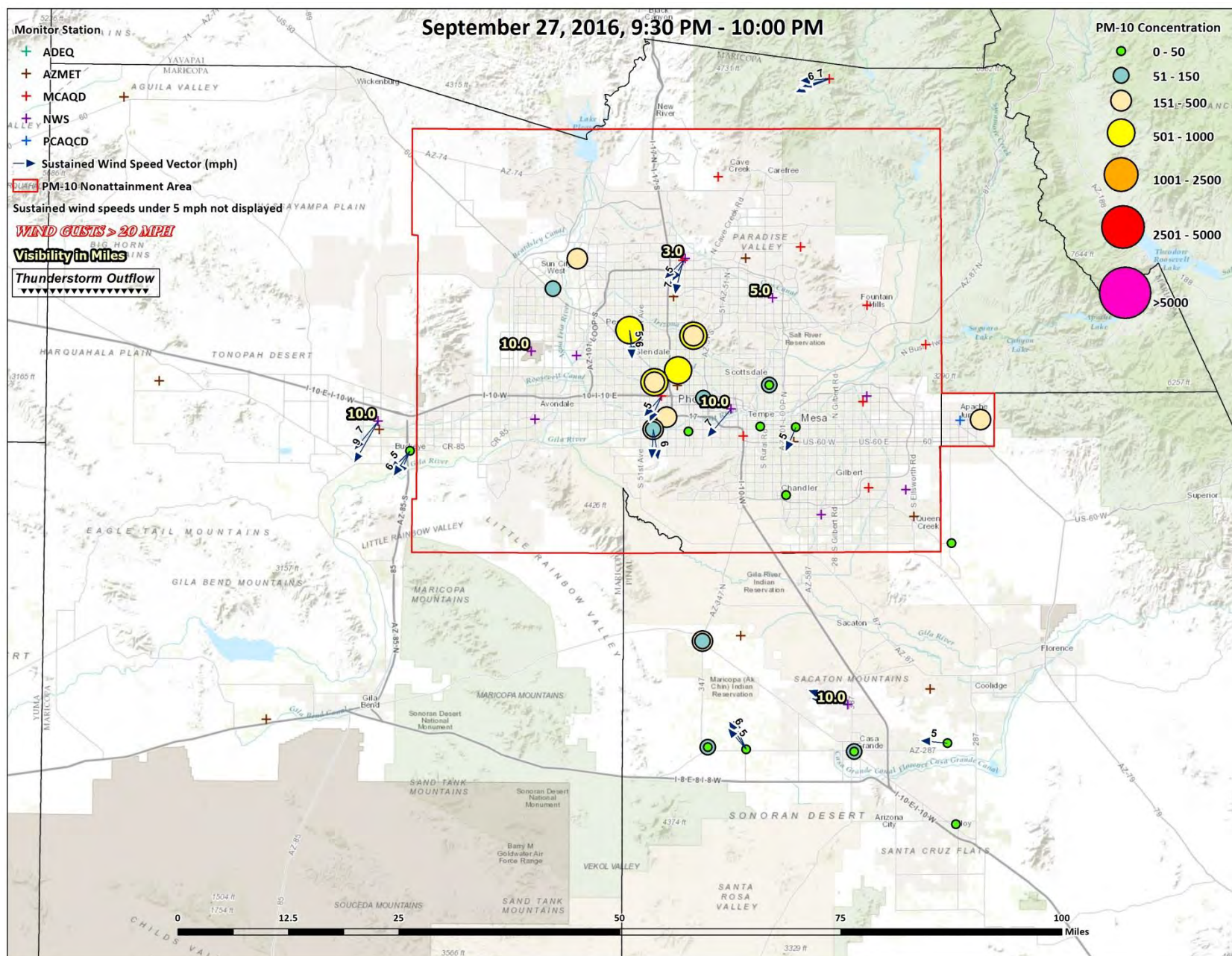
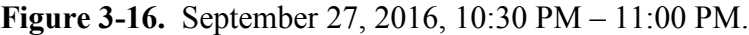
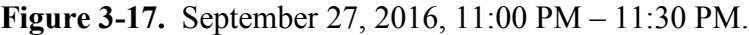


Figure 3-14. September 27, 2016, 9:30 PM – 10:00 PM.

Figure 3-15. September 27, 2016, 10:00 PM – 10:30 PM.





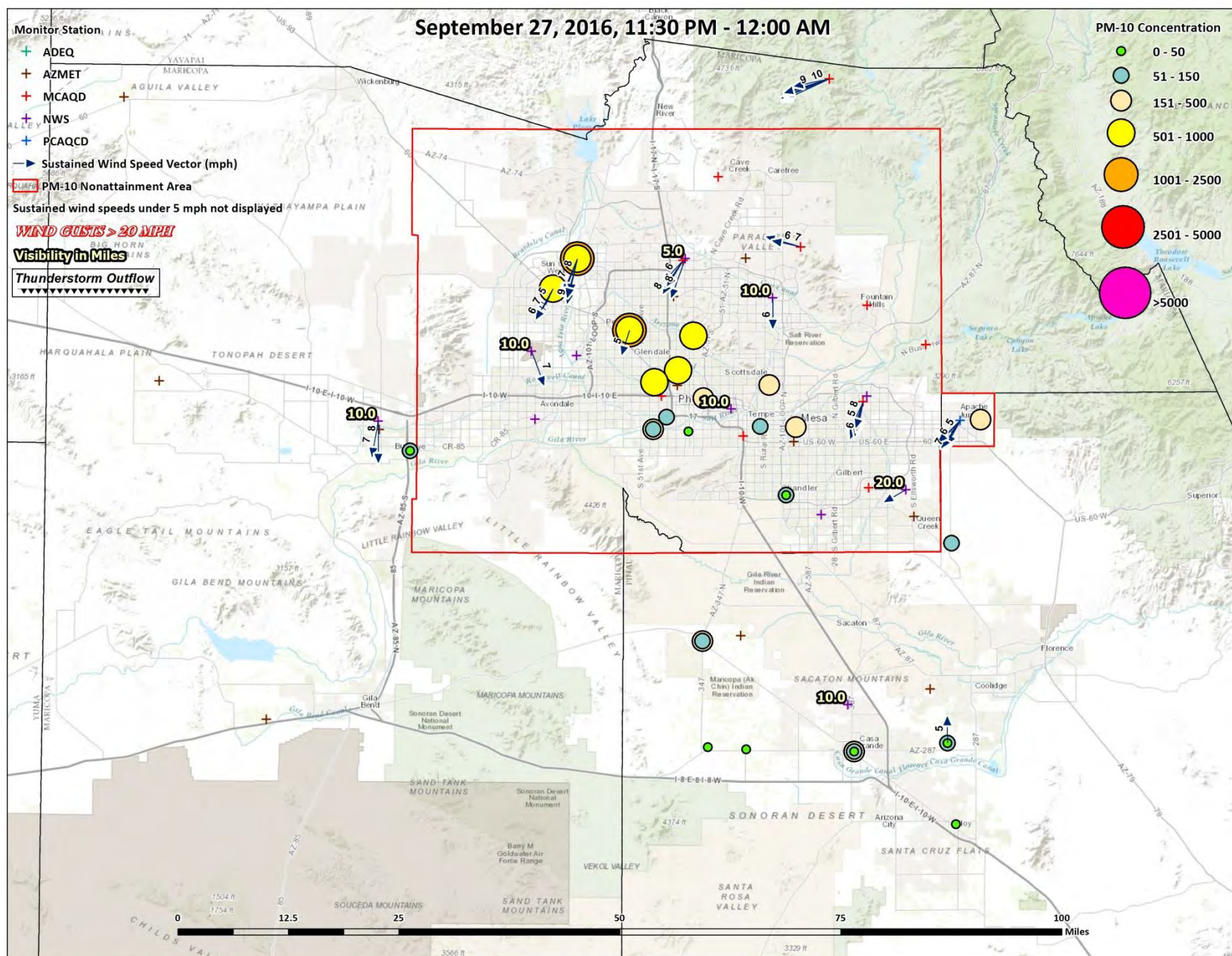


Figure 3-18. September 27, 2016, 11:30 PM – 12:00 AM.

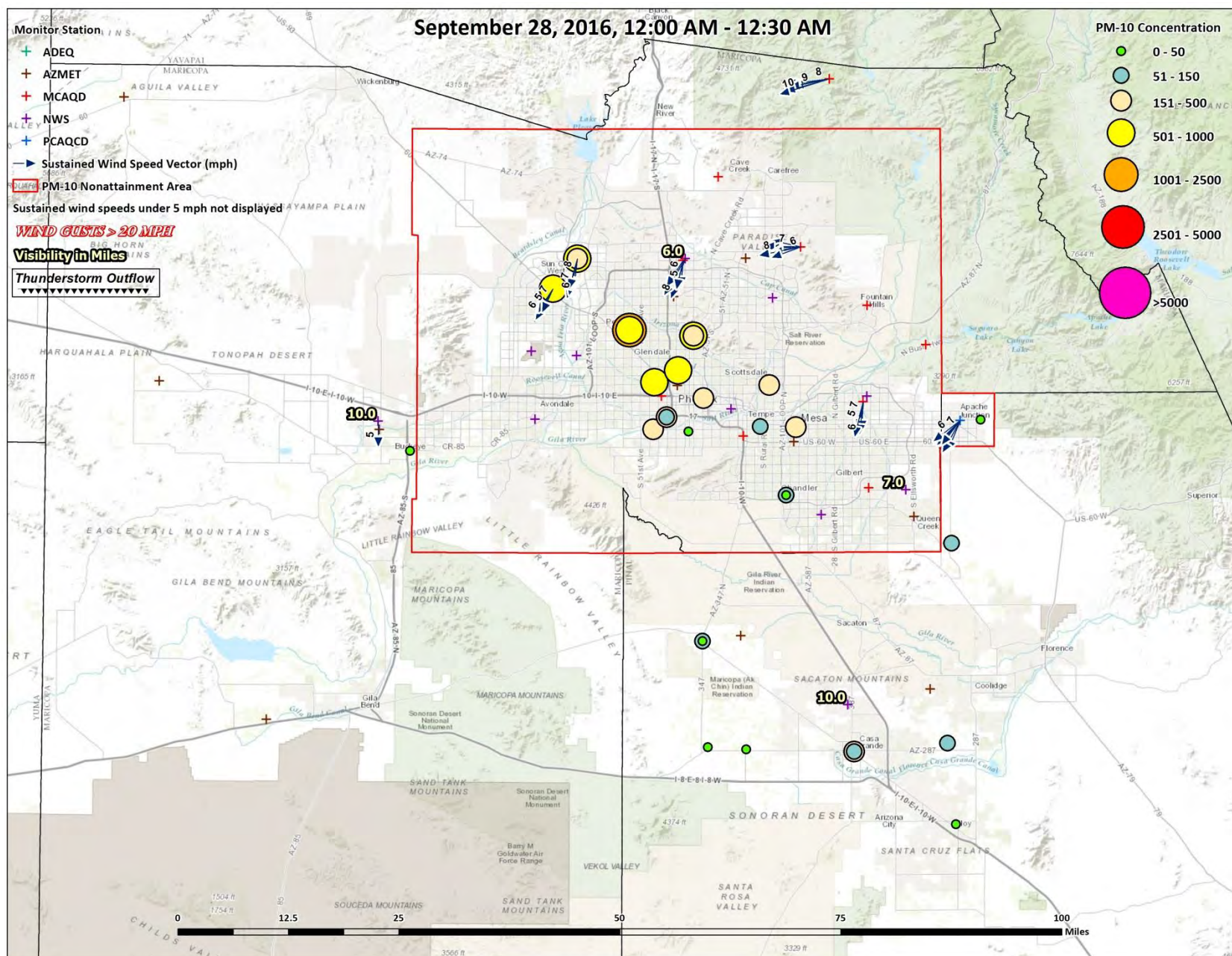


Figure 3-19. September 28, 2016, 12:00 AM – 12:30 AM.

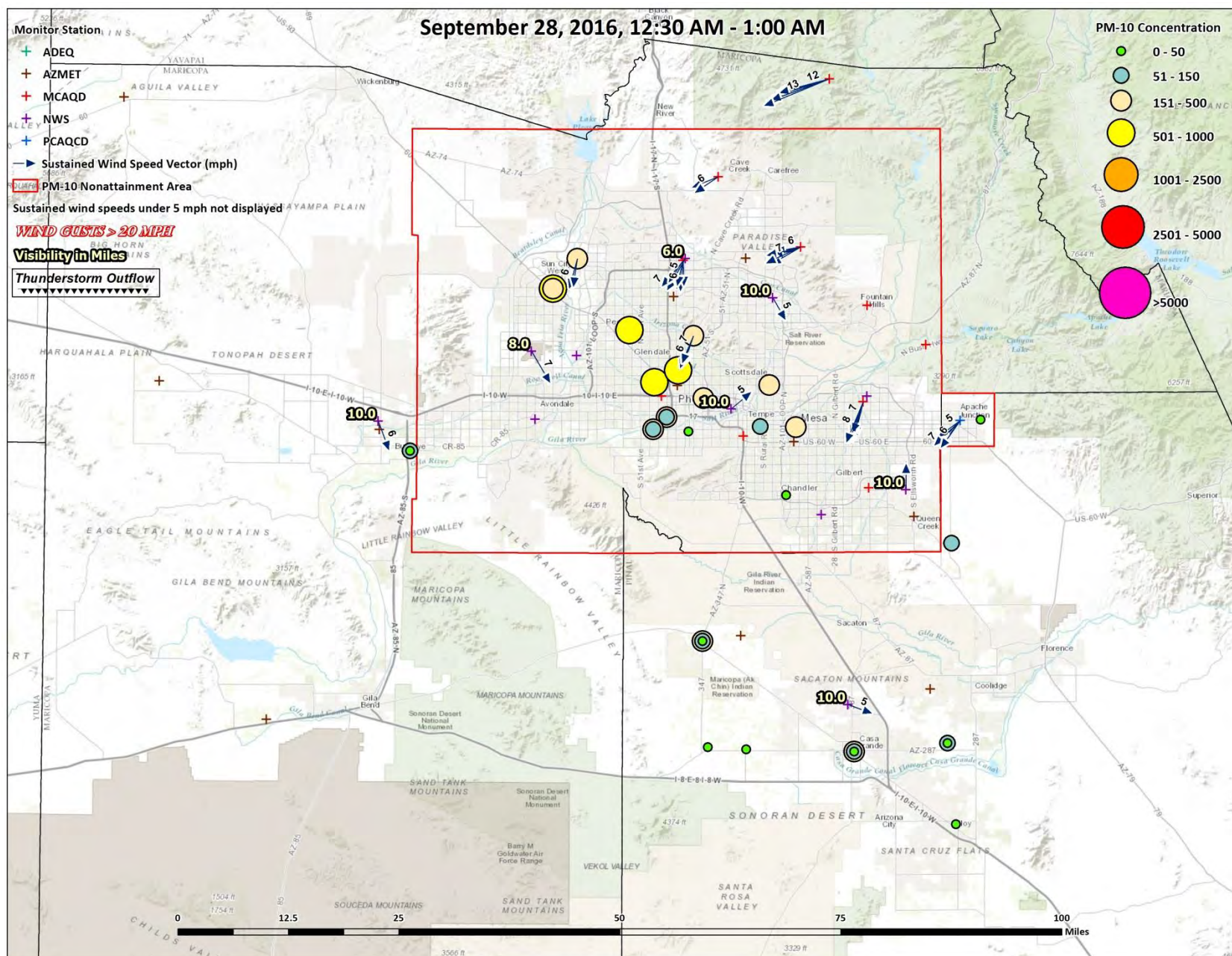


Figure 3-20. September 28, 2016, 12:30 AM – 1:00 AM.

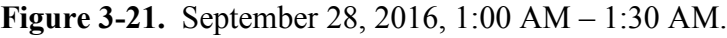
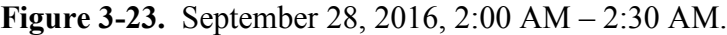


Figure 3-22. September 28, 2016, 1:30 AM – 2:00 AM.



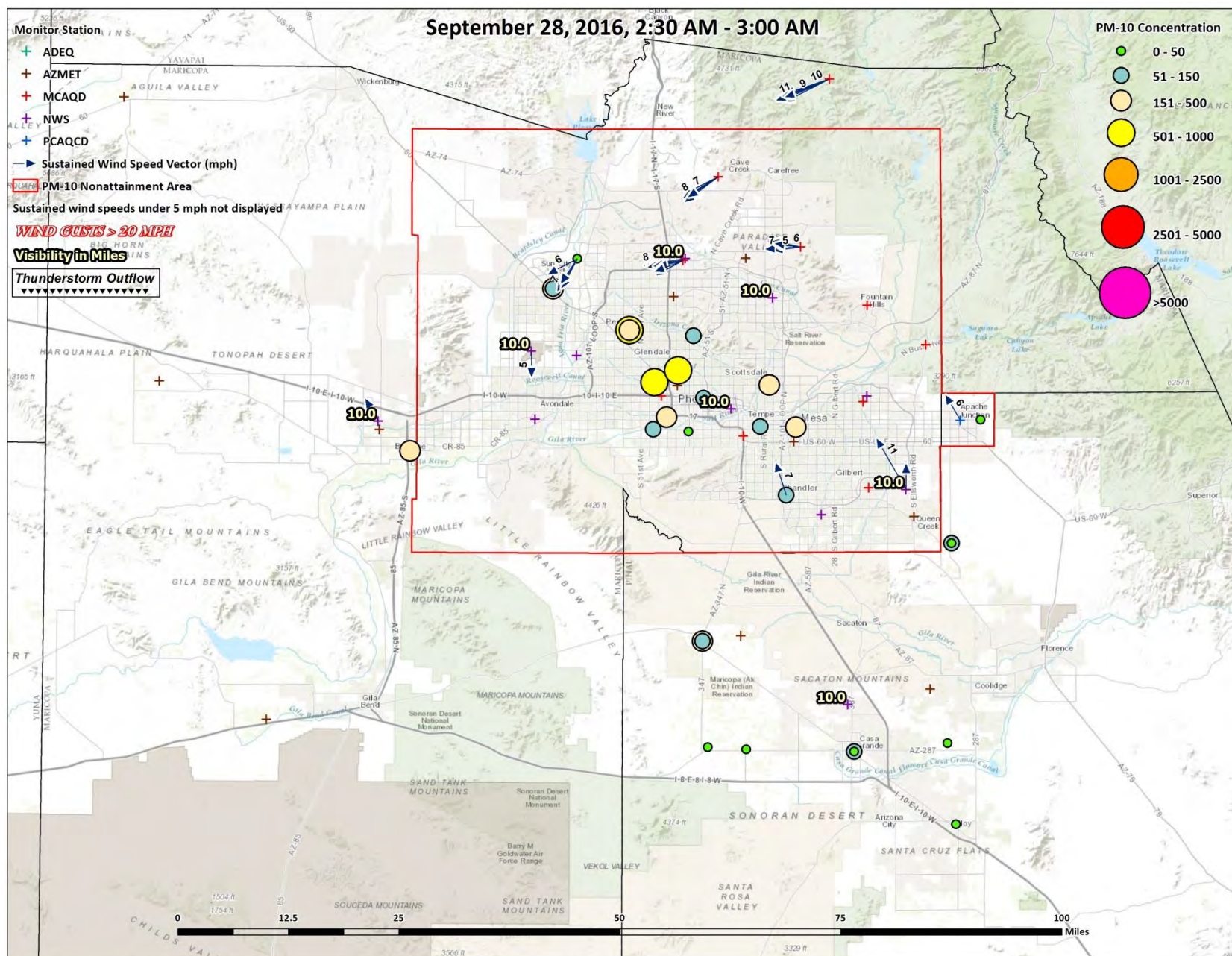


Figure 3-24. September 28, 2016, 2:30 AM – 3:00 AM.

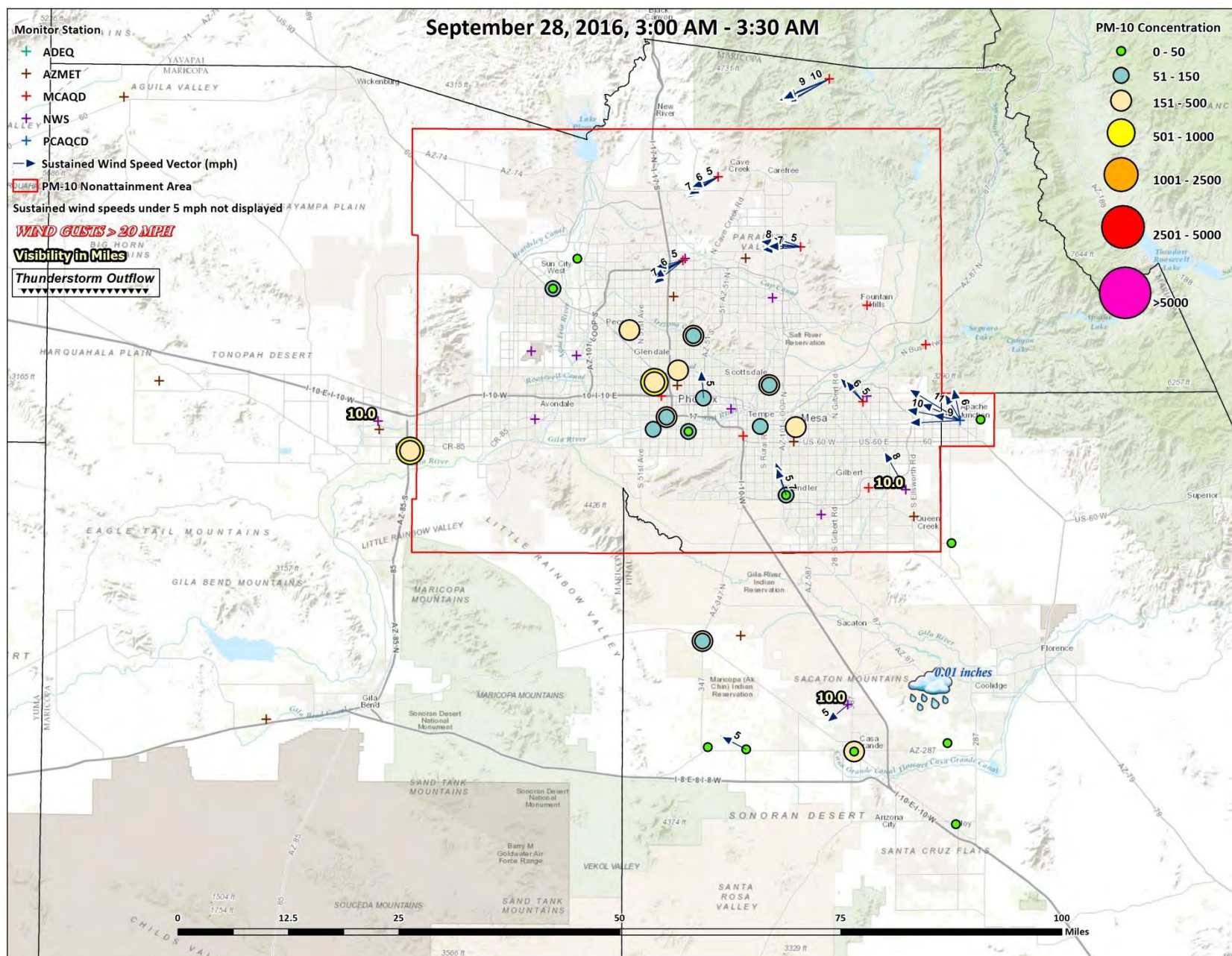


Figure 3-25. September 28, 2016, 3:00 AM – 3:30 AM.

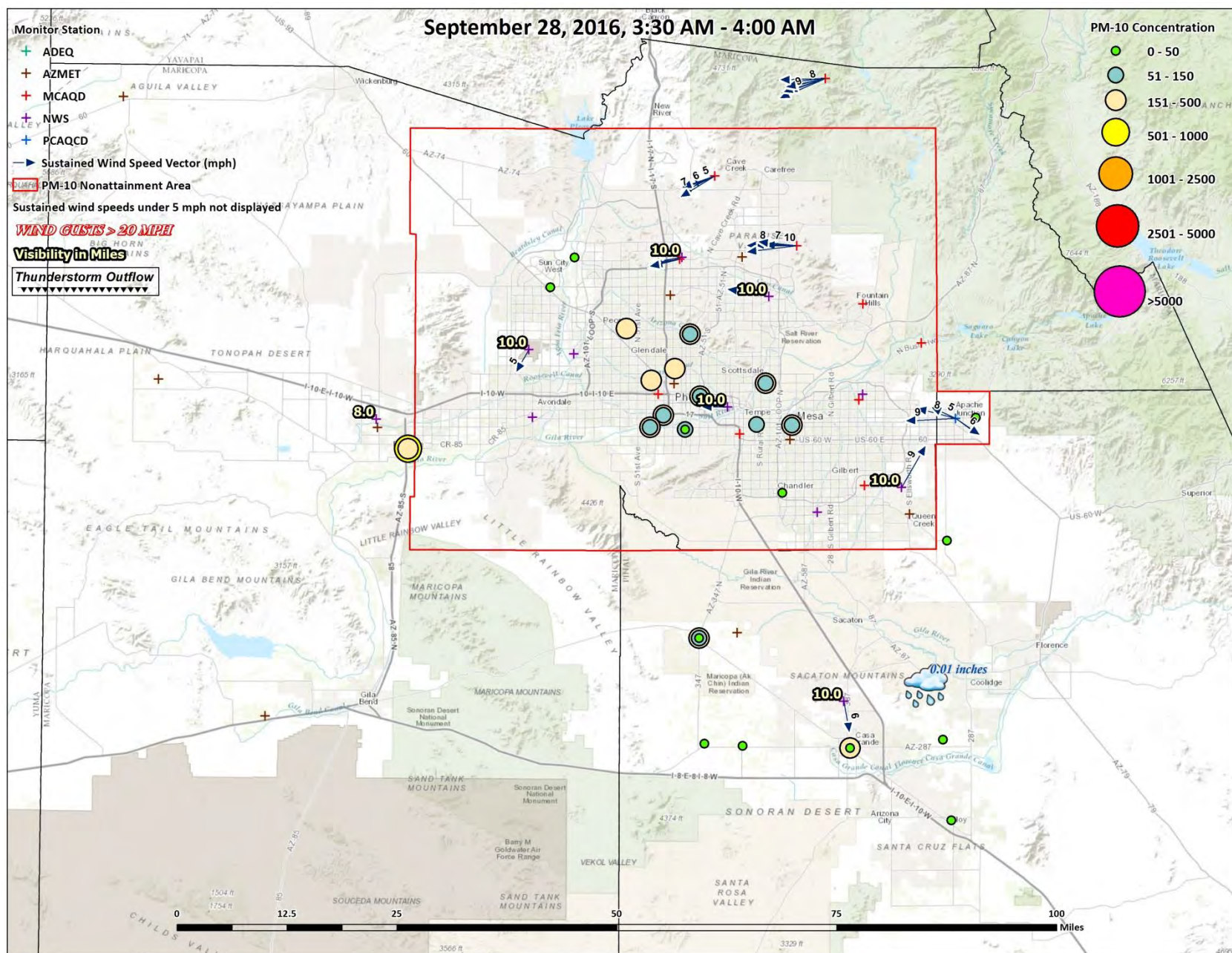


Figure 3-26. September 28, 2016, 3:30 AM – 4:00 AM.

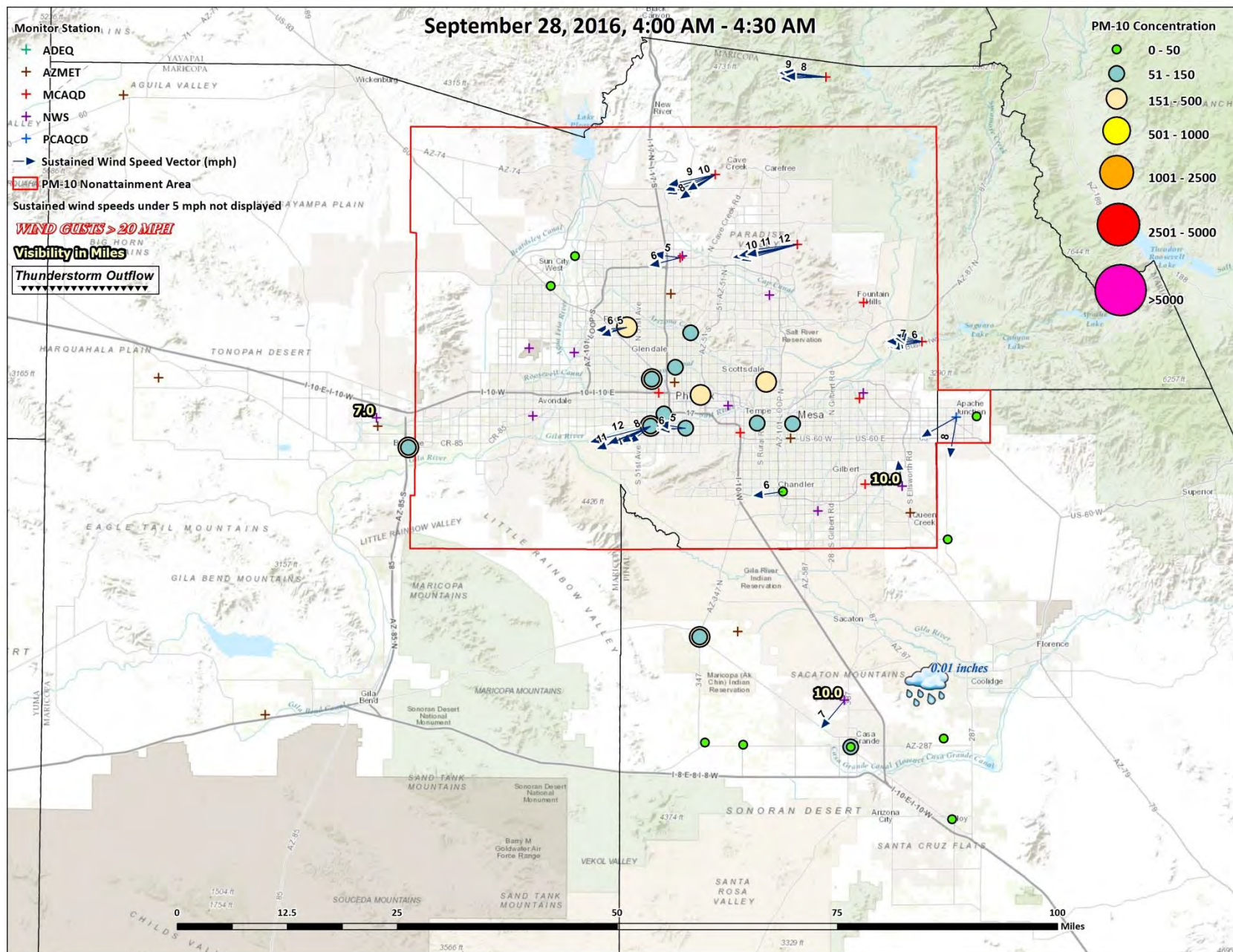


Figure 3-27. September 28, 2016, 4:00 AM – 4:30 AM.

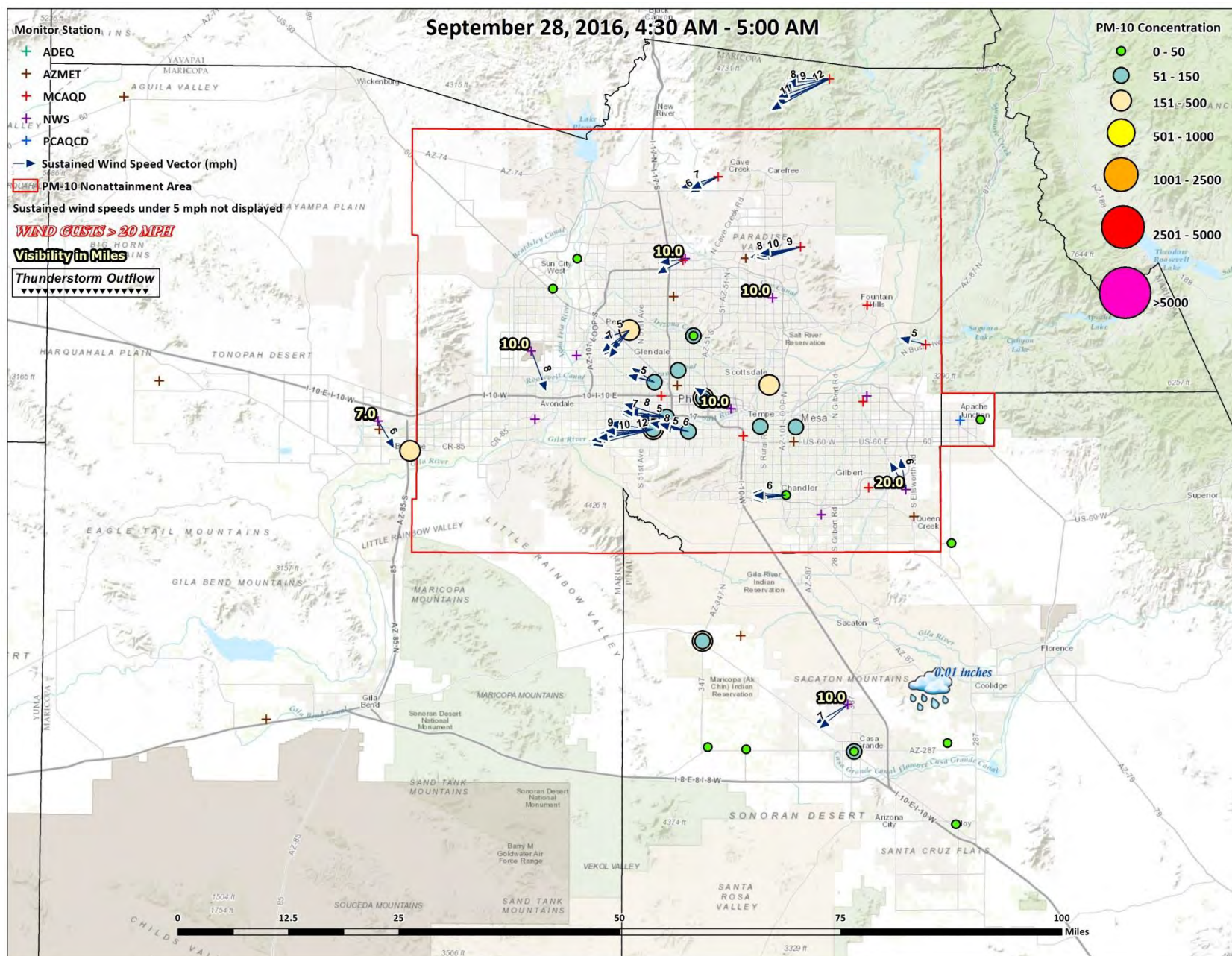


Figure 3-28. September 28, 2016, 4:30 AM – 5:00 AM.

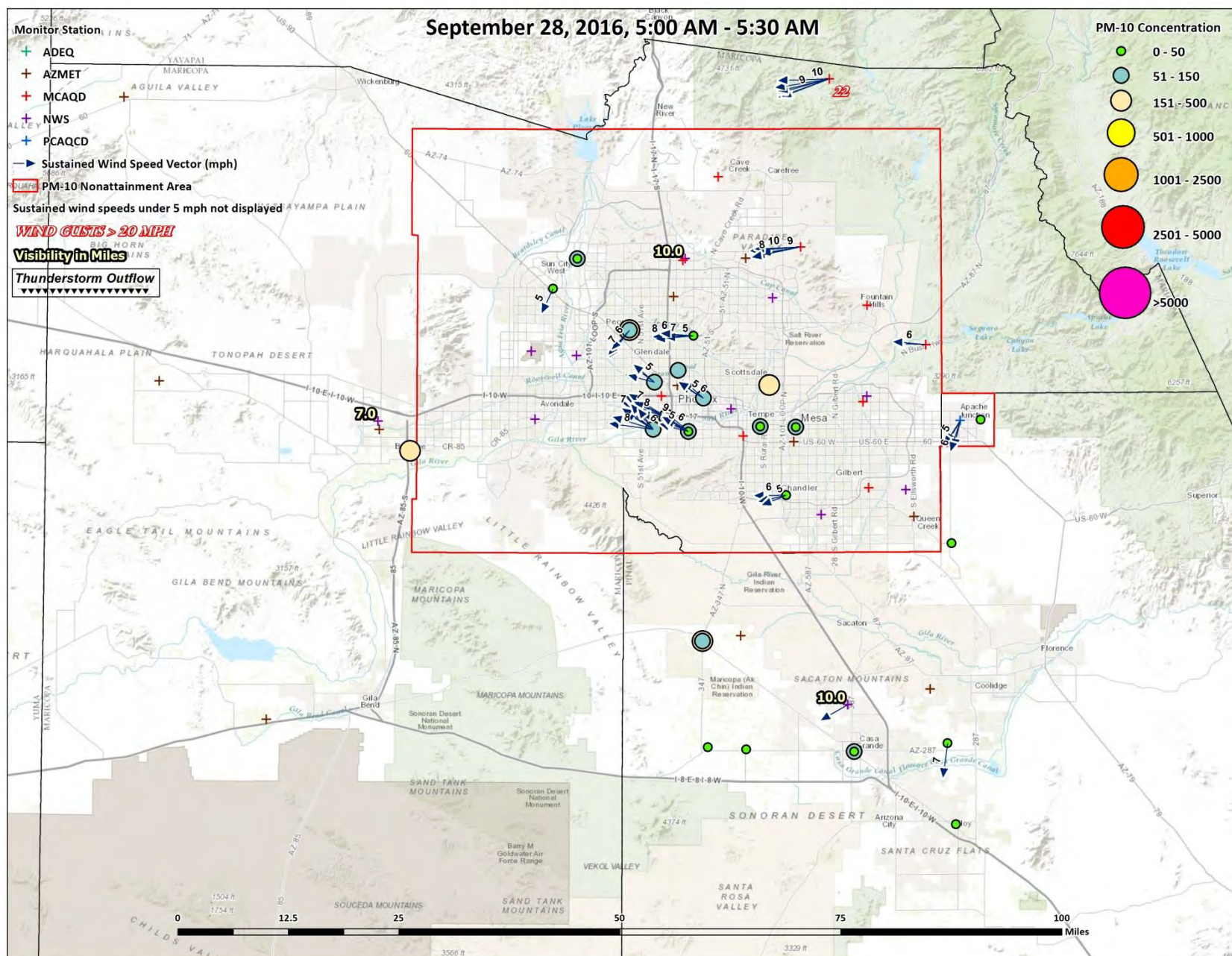


Figure 3-29. September 28, 2016, 5:00 AM – 5:30 AM.

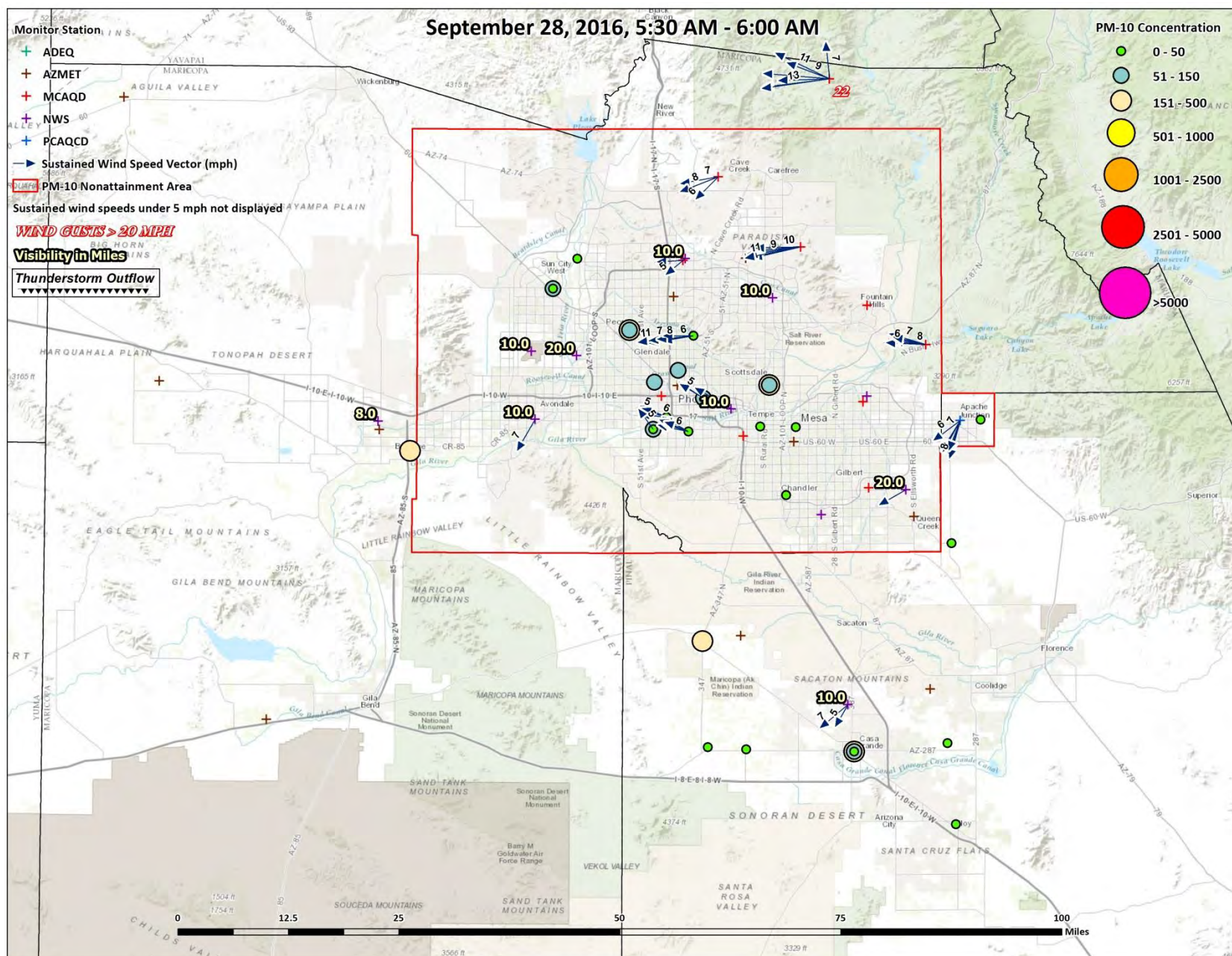


Figure 3-30. September 28, 2016, 5:30 AM – 6:00 AM.

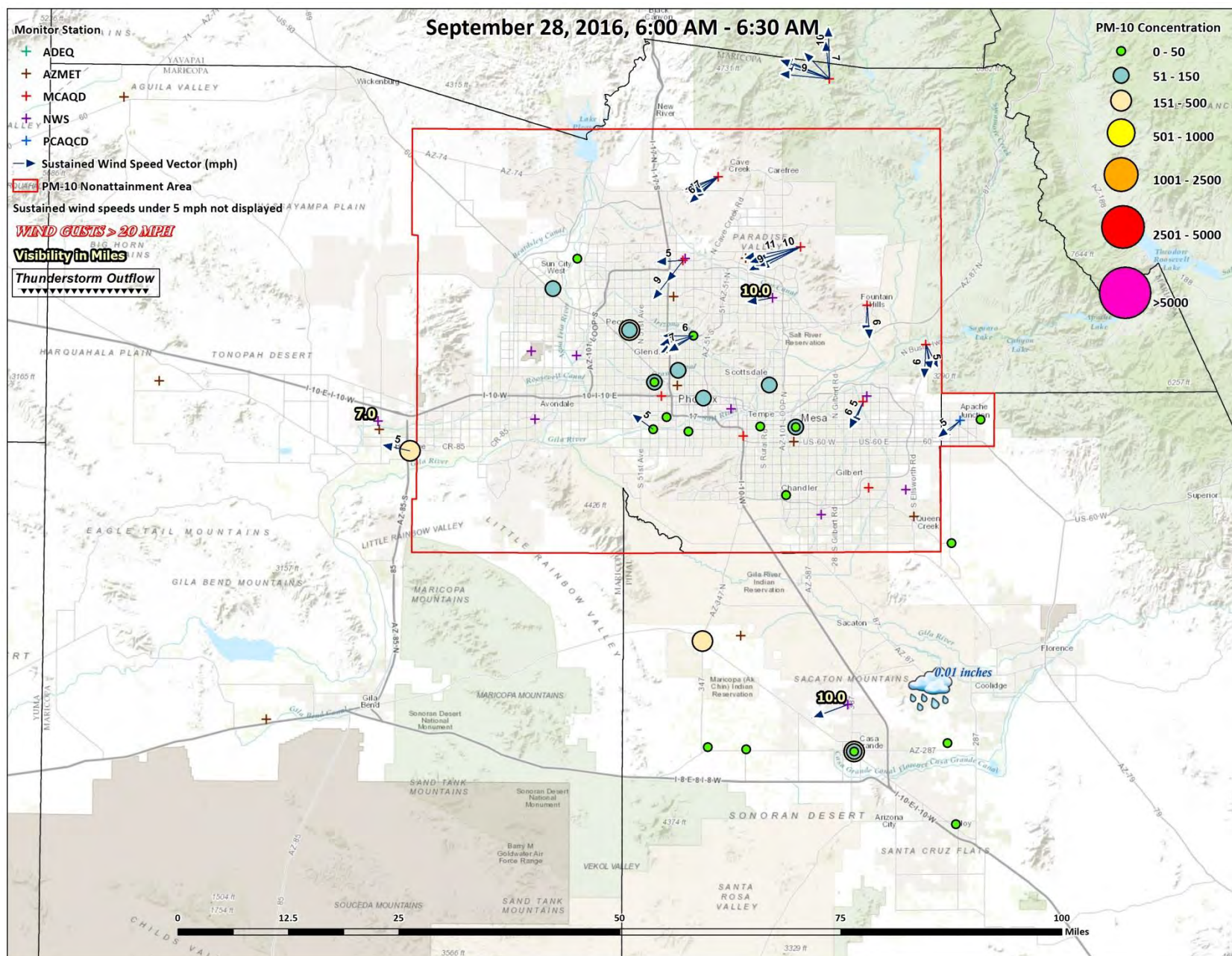


Figure 3-31. September 28, 2016, 6:00 AM – 6:30 AM.

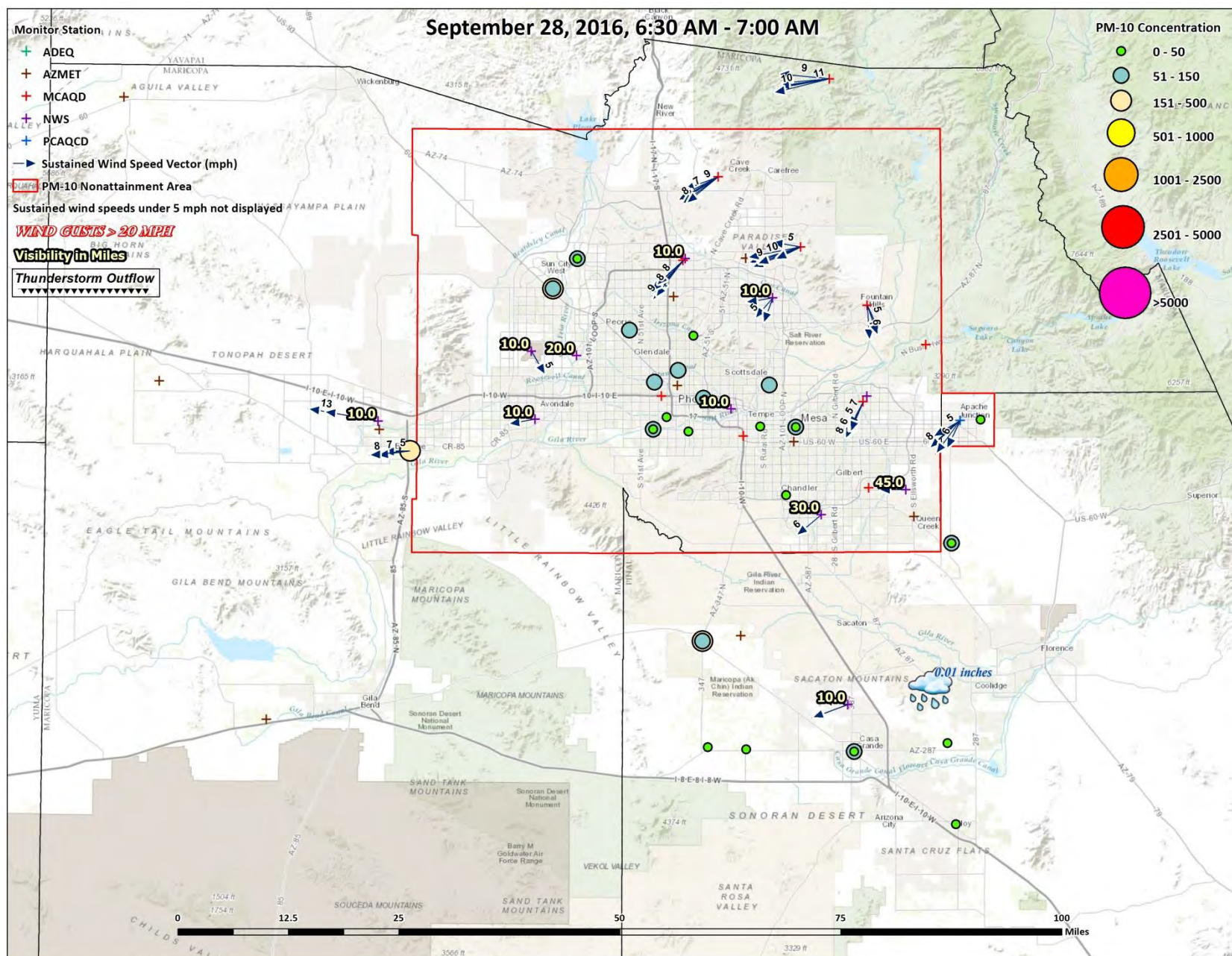


Figure 3-32. September 28, 2016, 6:30 AM – 7:00 AM.

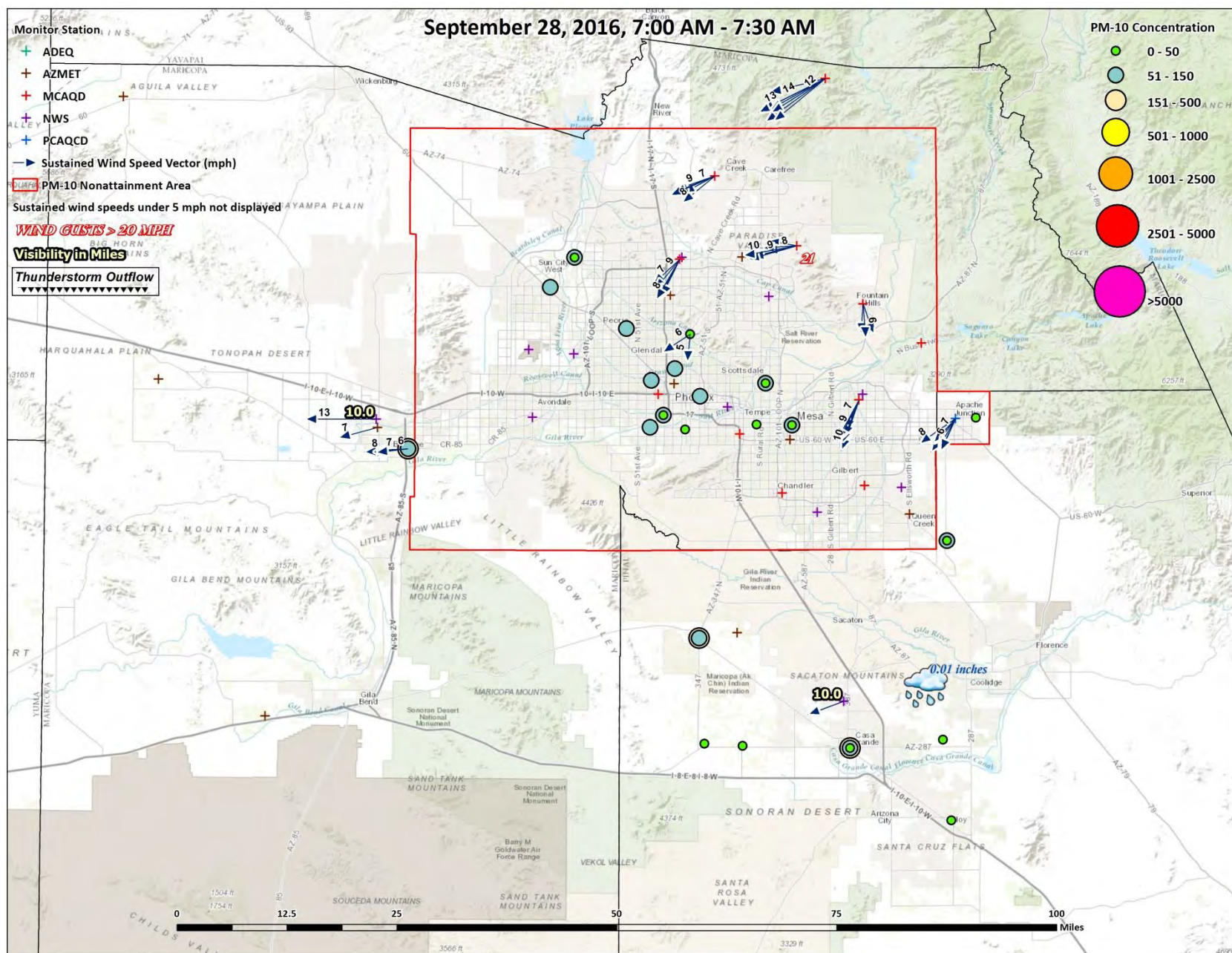


Figure 3-33. September 28, 2016, 7:00 AM – 7:30 AM.

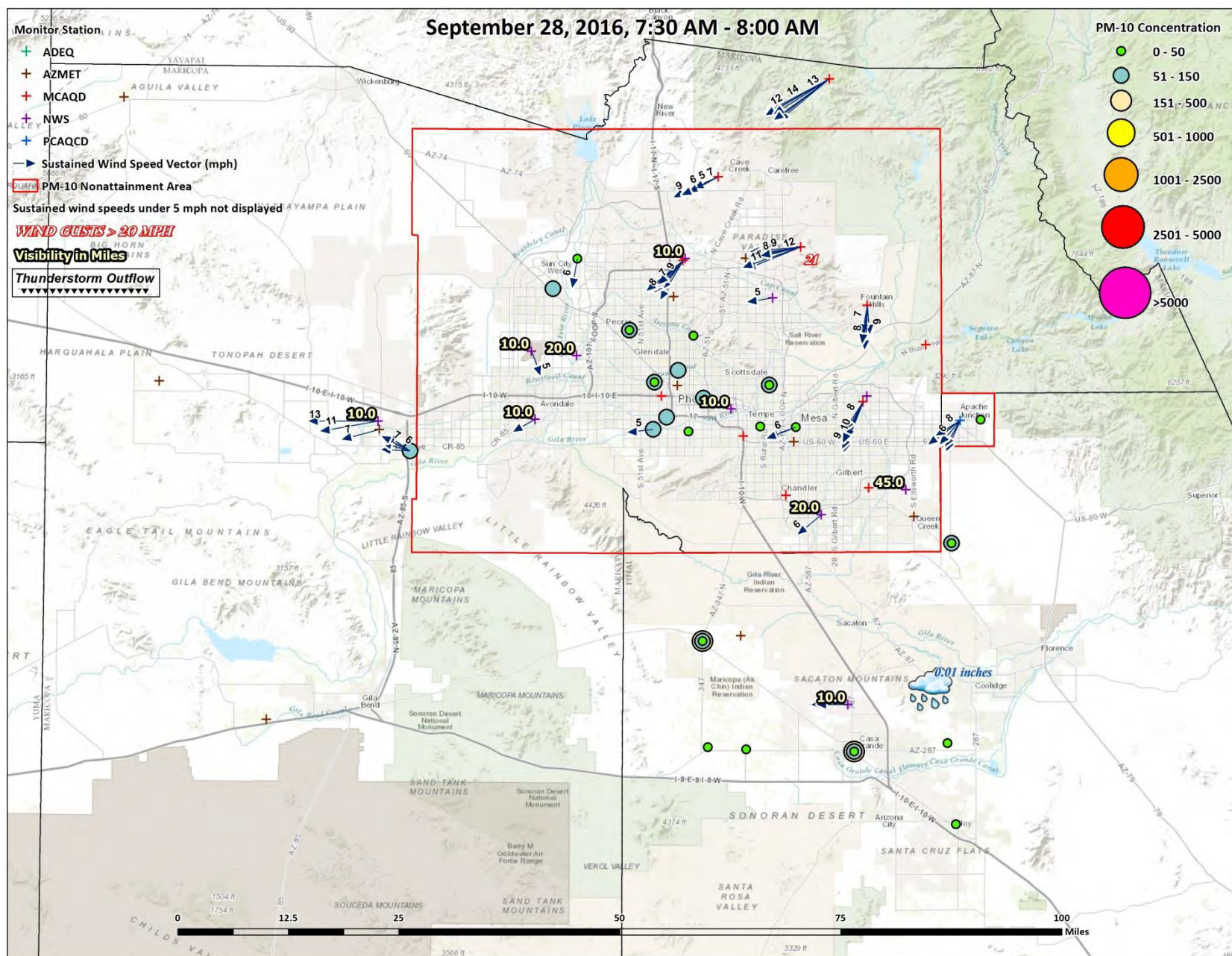


Figure 3-34. September 28, 2016, 7:30 AM – 8:00 AM.

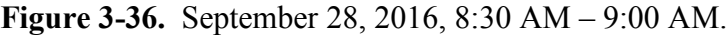


Figure 3-37. September 28, 2016, 9:30 AM – 9:30 AM.

Visibility Photos

ADEQ visibility photos (South Mountain) taken within the Maricopa County PM₁₀ nonattainment area show the degradation of visibility as windblown dust from the outflow arrives and stays suspended in the nonattainment area. These photos provide additional evidence of the clear causal relationship between transported windblown dust from the high wind dust event and the exceedance at the Glendale and JLG Supersite monitors. Figure 3–38 displays visibility conditions on September 27, 2016 as the windblown dust makes its way into the central portion of the nonattainment area near the exceeding monitors. Figure 3–39 displays visibility photos that show the suspension of dust in the evening of September 27, 2016 through the early morning of September 28, 2016.

September 27, 2016

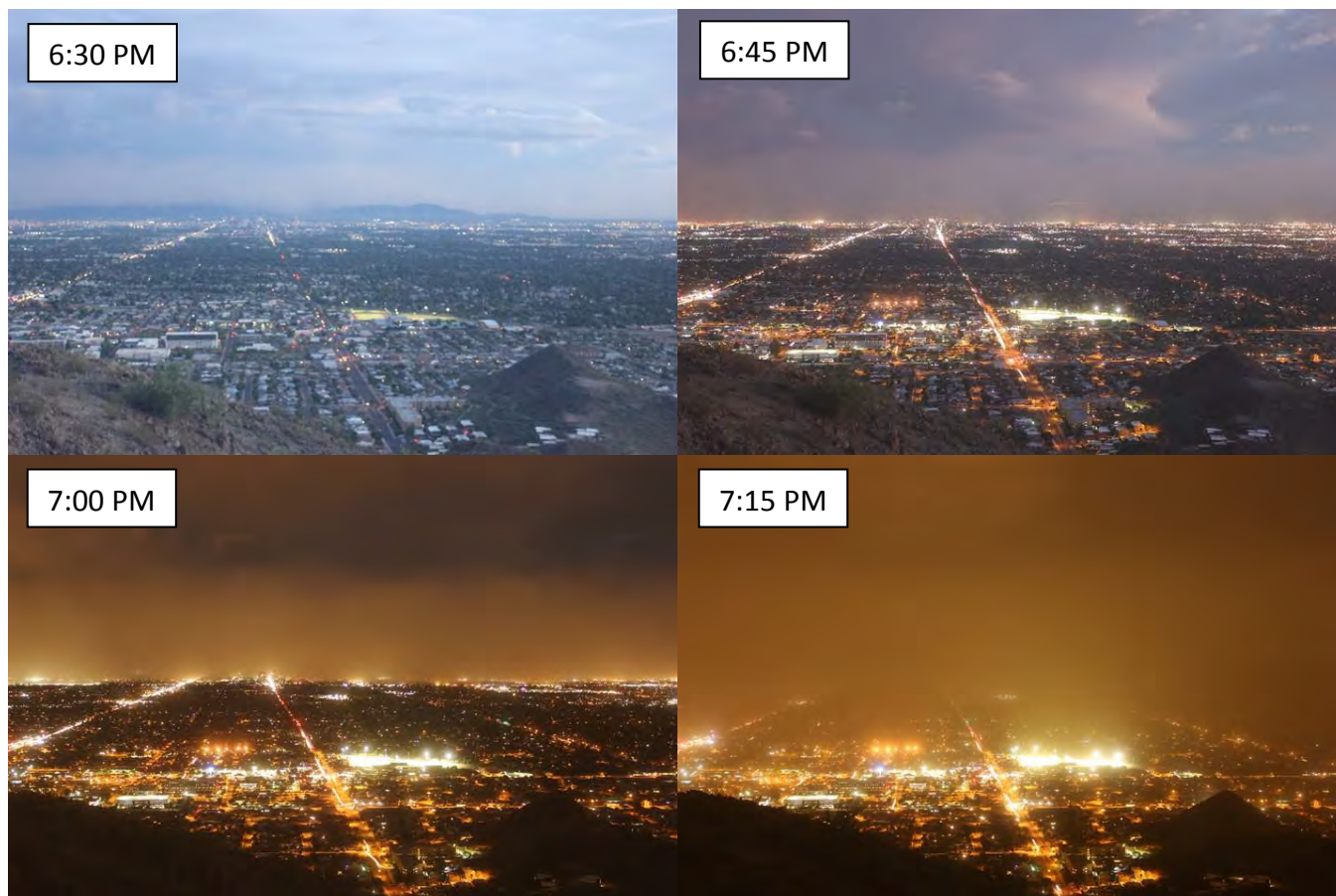


Figure 3-38. Visibility photos on September 27, 2016 as windblown dust enters the nonattainment area.

September 27-28, 2016

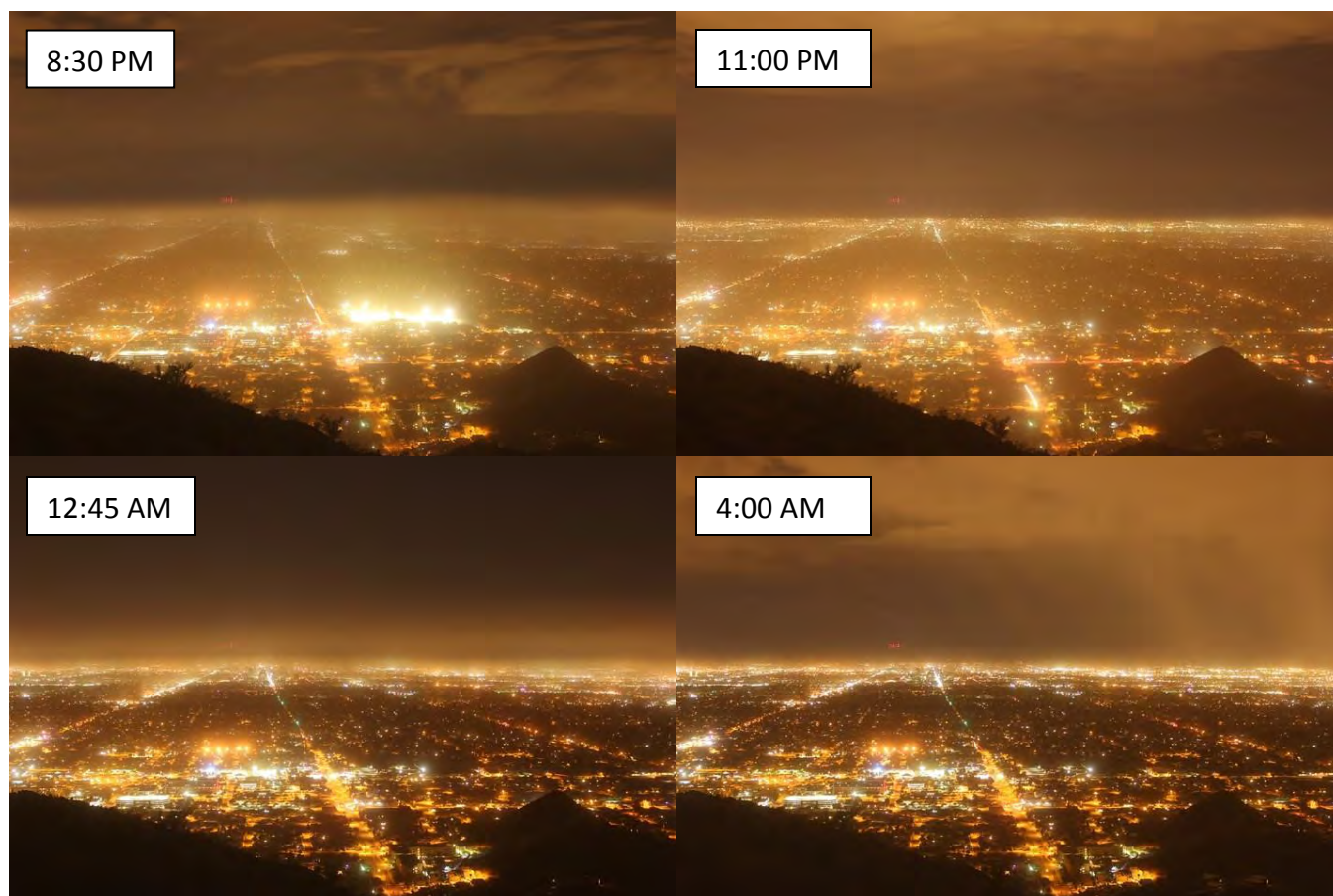


Figure 3-39. Visibility photos of suspended windblown dust on September 27-28, 2016 within the nonattainment area.

Conclusion

In summary, on September 27, 2016 a high wind dust event passed through the Maricopa County PM₁₀ nonattainment area which generated and transported windblown dust in the form of PM₁₀ resulting in elevated concentrations of PM₁₀ across the nonattainment area and an exceedance of the PM₁₀ standard at the Glendale and JLG Supersite monitors. The windblown dust remained suspended in the air through the evening of September 27, 2016 and into the morning of September 28, 2016, causing an exceedance at the Glendale monitor on September 28, 2016. The monitored PM₁₀ concentrations on September 27-28, 2016 at the exceeding Glendale and JLG Supersite monitors were compared to historical concentrations at the site in several analyses. The analyses confirm a clear causal relationship between the exceedance and the high wind dust event as compared to historical high wind dust event days and non-exceedance days.

In addition to the comparison to historical concentrations, figures displaying the chronological and spatial distribution of wind, visibility and PM₁₀ concentration data confirm that (1) sustained winds at 25 mph were high enough to entrain significant windblown dust from natural desert areas and disturbed, anthropogenic source areas subject to reasonable controls in the source area of the outflow; (2) PM₁₀ concentrations peaked transported windblown dust arrived in the PM₁₀ nonattainment area and when the windblown dust remained suspended in the nonattainment area throughout the evening of September 27 and the morning of September 28, 2016; and (3) visibility conditions (as confirmed through visibility photos and NWS readings) at

nonattainment area monitors where the thunderstorm outflow-generated windblown dust passed over or by were degraded as a result of the transported and suspended windblown dust from the high wind dust event. These analyses taken as a whole provide strong weight of evidence that the high wind dust event affected air quality in such a way that there exists a clear causal relationship between the high wind dust event on September 27-28, 2016 and the PM_{10} exceedances at the Glendale and JLG Supersite monitors on September 27-28, 2016, thus satisfying the clear causal relationship criterion.

IV. NATURAL EVENT AND NOT REASONABLY CONTROLLABLE OR PREVENTABLE CRITERIA

Natural Event

40 CFR Section 50.14(c)(3)(iv)(E) requires a demonstration that the exceptional event was either a human activity that is unlikely to recur at a particular location or was a natural event. The revised exceptional events rule defines a natural event at 40 CFR Section 50.1(k) as “an event and its resulting emissions, which may recur at the same location, in which human activity plays little or no direct causal role. For purposes of the definition of a natural event, anthropogenic sources that are reasonably controlled shall be considered to not play a direct role in causing emissions.” Additionally, specific to high wind dust events, 40 CFR Section 50.14(b)(5)(ii) states that “[t]he Administrator will consider high wind dust events to be natural events in cases where windblown dust is entirely from natural undisturbed lands in the area or where all anthropogenic sources are reasonably controlled as determined in accordance with paragraph b(8) of this section.”

The clear causal relationship demonstration in the prior chapter found that high wind dust events can recur at the exceeding Glendale and JLG Supersite monitors. Figures 3–1 and 3–2 indicate that 11 and 9 prior high wind dust events have occurred in the past five years at the monitor at the Glendale and JLG Supersite monitors, respectively. The clear causal relationship demonstration also found that the PM₁₀ emissions which caused the exceedances at the Glendale and JLG Supersite monitors were associated with windblown dust generated and transported by sustained wind speeds that met the default high wind threshold of 25 mph established in 40 CFR Section 50.14(b)(5)(iii). EPA states in the preamble to the revised exceptional events rule that, “[f]or high wind dust events, if sustained wind speeds are above the high wind threshold and the anthropogenic emissions sources are reasonably controlled, it is more likely that human activity plays little or no direct role in causing emissions.” The following section of this chapter demonstrates that reasonable controls were in place on all windblown dust anthropogenic sources in the Maricopa County PM₁₀ nonattainment area during the high wind dust event. For these reasons, the high wind dust event on September 27-28, 2016, qualifies as a natural event.

Not Reasonably Controllable or Preventable

40 CFR Section 50.14(c)(3)(iv)(D) requires a demonstration that the exceptional event was both not reasonably controllable and not reasonably preventable. 40 CFR Section 50.14(b)(8) provides the demonstrations needed to establish that the exceptional event was not reasonably controllable or preventable for all exceptional events. Additionally, specific requirements regarding the not reasonably controllable or preventable criterion related to high wind dust events are provided in 40 CFR Section 50.14(b)(5).

40 CFR Sections 50.14(b)(8)(i) through (iii) states that “[t]he not reasonably controllable or preventable criterion has two prongs that the State must demonstrate: prevention and control. (ii) The Administrator shall determine an event is not reasonably preventable if the State shows that reasonable measures to prevent the event were applied at the time of the event. (iii) The Administrator shall determine that an event is not reasonably controllable if the State shows that reasonable measures to control the impact of the event on air quality were applied at the time of the event.”

Regarding whether the event was not reasonably preventable, the revised exceptional events rule has specific regulations for high wind dust events that exempt a State from needing to provide a case-specific justification that the event was not reasonably preventable (40 CFR Section 50.14(b)(5)(iv)). In keeping with the specific high wind dust event regulation, and because the high winds that entrain the windblown dust are by nature unpreventable, a case-specific justification that the high wind dust event on September 27-28, 2016 was not preventable is not needed or presented in this documentation.

Regarding whether the event was not reasonably controllable, 40 CFR Section 50.14(b)(8)(iv) states that EPA “shall assess the reasonableness of available controls for anthropogenic sources based on information available as of the date of the event”. Additionally, 40 CFR Section 50.14(b)(8)(v) provides deference to controls in a state implementation plan that have been approved by EPA within five years of the event date, “the Administrator shall consider enforceable control measures implemented in accordance with a state implementation plan...approved by the EPA within 5 years of the date of the event, that address the event-related pollutant and all sources necessary to fulfill the requirements of the Clean Air Act for the state implementation plan...to be reasonable controls with respect to all anthropogenic sources that have or may have contributed to the monitored exceedance or violation.”

The *MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area* contains a wide variety of control measures and projects that have been implemented to reduce and control PM₁₀ emissions, including PM₁₀ emissions generated under high wind conditions, which were in place and implemented at the time of the event. Requirements to reduce and control PM₁₀ emissions in the plan apply to a broad range of sources including: unpaved roads and shoulders, leaf blowers, unpaved parking lots, vacant lots, sweeping streets with certified sweepers, off-road vehicle use, open and recreational burning, residential wood burning, covered vehicle loads, dust generating operations, nonmetallic mineral processing, and other unpermitted sources. EPA published final approval of the MAG 2012 Five Percent Plan on June 10, 2014 (79 FR 33107).

On September 12, 2016 the U.S. Court of Appeals for the Ninth Circuit issued an opinion in the lawsuit filed by the Arizona Center for Law in the Public Interest (*Bahr v. U.S. EPA*) to challenge the Environmental Protection Agency approval of the MAG 2012 Five Percent Plan. The Court upheld EPA’s determination that the control measures in the plan did not need to be updated and also upheld EPA’s exclusion of PM₁₀ exceedances in 2011 and 2012 as exceptional events caused by high wind dust events. The Court remanded the contingency measures in the plan to EPA for further consideration. Because EPA has approved the MAG 2012 Five Percent Plan within five years of the high wind dust event, and the approved plan addresses the event-related pollutant and all sources necessary to fulfill the requirements of the Clean Air Act, and because the State is not currently under obligation to revise the state implementation plan, the controls in the MAG 2012 Five Percent Plan are considered reasonable controls with respect to all anthropogenic sources that have or may have contributed to the monitored exceedance.

Specific to high wind dust events, 40 CFR Section 50.14(b)(5)(v) states that “[w]ith respect to the not reasonably controllable criterion of paragraph (c)(3)(iv)(D) of this section, dust controls on an anthropogenic source shall be considered reasonable in any case in which the controls render the anthropogenic source as resistant to high winds as natural undisturbed lands in the area affected by the high wind dust event. The Administrator may determine lesser controls reasonable on a case-by-case basis.”

When evaluating this regulation, EPA considers whether wind speeds were above the high wind threshold (25 mph default) during the event as an important indicator for whether or not the implemented controls were reasonable. In the preamble to the revised exceptional events rule, EPA states that, “[t]he EPA will continue to consider an area’s high wind threshold when reviewing demonstrations for events in a

nonattainment or maintenance area where the EPA has approved a SIP, TIP or FIP within 5 years of the date of the event. For a demonstration in such a case, the not reasonably controllable criterion hinges only on implementation of the control measures in the SIP, TIP or FIP, not on the content of those measures. For events with sustained wind speeds above the high wind threshold that occur simultaneously with high monitored PM concentrations, it is very plausible that SIP, TIP, or FIP controls were being implemented and the high PM concentrations resulted from emissions generated by sources in the area despite implementation of those controls...Therefore, the comparison of sustained wind speeds during an event to the high wind threshold will help the EPA Regional offices determine what evidence must be included in a demonstration. Specifically, it will inform the evidence required for the not reasonably controllable or preventable criteria, the possibility of noncompliance, or emissions from non-event sources.”

The clear causal relationship demonstration in Chapter III of this documentation clearly establishes that high PM₁₀ concentrations at the exceeding monitors and throughout the nonattainment area were the result of transported windblown dust that was generated by a thunderstorm outflow with recorded sustained wind speeds of 25 mph and gusts of 41 mph. This provides evidence that (1) the controls in place within the Maricopa County PM₁₀ nonattainment area and at the exceeding monitors during the high wind dust event on September 27-28, 2016 meet the requirements of 40 CFR Section 50.14(b)(5)(v) by rendering anthropogenic sources as resistant to high winds as natural undisturbed lands, and that (2) source noncompliance is less likely given the severity of the wind speeds.

Lastly, 40 CFR Section 50.14(b)(8)(viii) requires that the State must include the following components in a demonstration that addresses the not reasonably controllable or preventable criterion for prescribed fire events and certain high wind dust events: “(A) Identification of the natural and anthropogenic sources of emissions causing and contributing to the monitored exceedance or violation, including the contribution from local sources. (B) Identification of the relevant state implementation plan, tribal implementation plan, or federal implementation plan or other enforceable control measures in place for sources identified in paragraph...(A) of this section and the implementation status of these controls. (C) Evidence of effective implementation and enforcement of the measures identified in paragraph...(B) of this section.” The following sections satisfy the requirements of 40 CFR Section 50.14(b)(8)(viii).

Identification of Natural and Anthropogenic Sources of Emissions

As discussed in the narrative conceptual model and the clear causal relationship demonstration, due to the origin region of the thunderstorm outflow, the sources of the windblown dust during the event on September 27-28, 2016 are the natural desert areas of west-central Pinal County. The windblown dust from this source area was then transported to and suspended in the Maricopa County PM₁₀ nonattainment area on diminishing thunderstorm outflow winds. If any anthropogenic source in the source area contributed to the event, those sources were overwhelmed by sustained winds of 25 mph and gusts of 41 mph as reported by the NWS. From the source area, windblown dust was then transported to the Maricopa County PM₁₀ nonattainment area as confirmed by numerous visibility readings and photos. While the outflow-generated winds were strong enough to transport windblown dust into the nonattainment area, wind speeds had started to subside as the outflow reached the nonattainment area, making it unlikely that any significant windblown dust from anthropogenic sources within the nonattainment area contributed to the exceedances.

The most likely natural sources given the prevailing wind patterns of the high wind event include the desert areas of west-central Pinal County. While there is no evidence of anthropogenic sources contributing to the event, if anthropogenic sources were to contribute to the exceedances at the Glendale and JLG Supersite monitors they would likely include those sources located immediately upwind (south) of the monitor. The immediate area (within four miles) around the Glendale and JLG Supersite monitors is developed and

urbanized residential and commercial land uses. Anthropogenic PM₁₀ emission sources in this area may likely include, but are not limited to, paved road dust, landscaping activities, and industrial activities. Figure 4-1 displays a recent aerial photo (2015) of the area upwind (approximately five to ten miles) of the Glendale and JLG Supersite monitors.

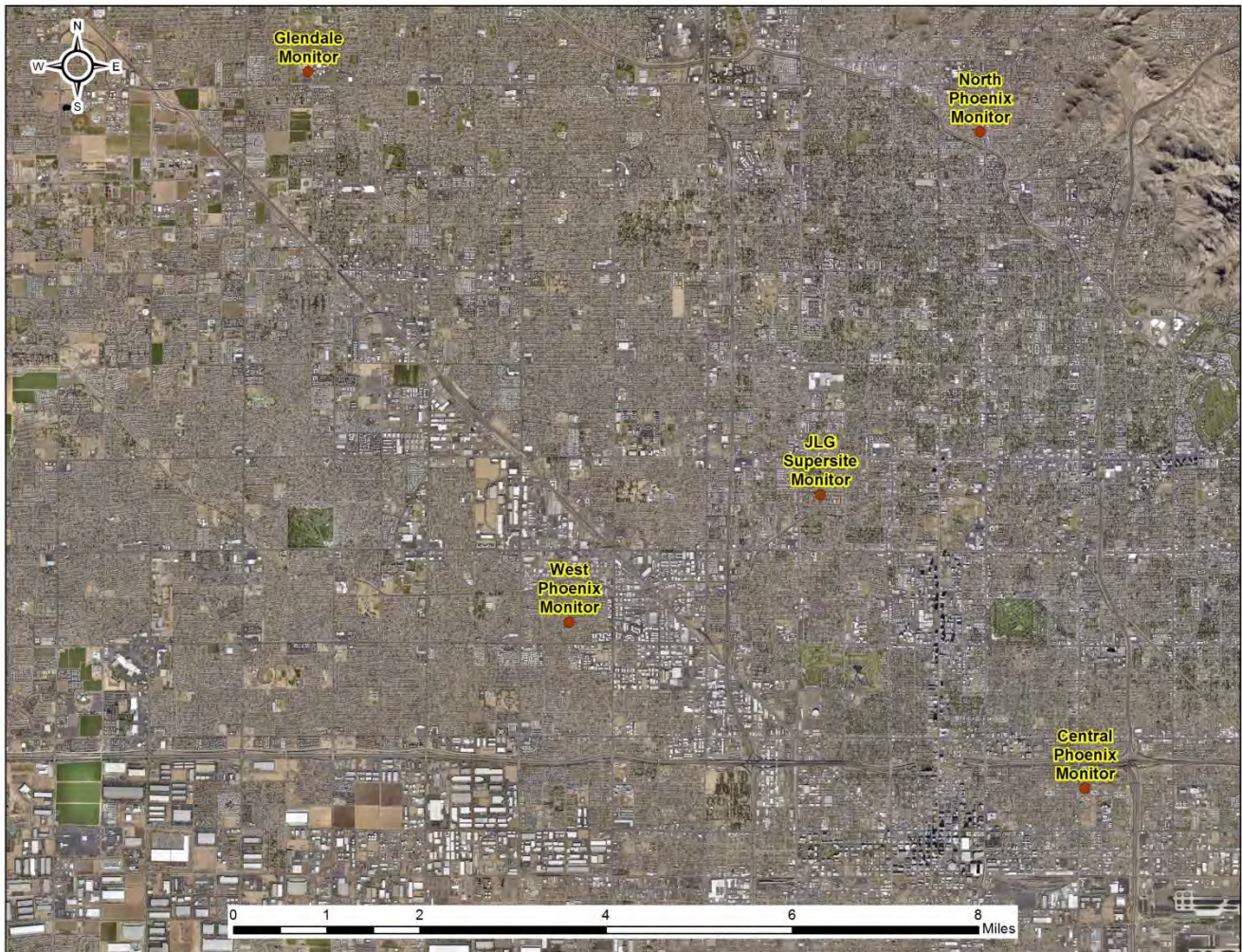


Figure 4-1. Aerial photo of the immediate area upwind of the exceeding Glendale and JLG Supersite monitors.

Identification of Relevant Control Measures

As discussed above, the *MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area* is the latest state implementation plan approved by EPA. This plan contains a wide variety of control measures and projects that have been, and are being, implemented to reduce and control PM₁₀ emissions, including PM₁₀ emissions generated under high wind conditions, which were in place and implemented at the time of the event. Requirements to reduce and control PM₁₀ emissions in the plan apply to a broad range of sources including: unpaved roads and shoulders, leaf blowers, unpaved parking lots, vacant lots, sweeping streets with certified sweepers, off-road vehicle use, open and recreational burning, residential wood burning, covered vehicle loads, dust generating operations, nonmetallic mineral processing, and other unpermitted sources. Table 4–1 lists the control measures included in the MAG 2012 Five Percent Plan.

Table 4-1. Control Measures included in the MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area.

| Arizona Revised Statutes (A.R.S.) | Description |
|---|--|
| A.R.S. § 9-500.04. Only A.3., A.5., A.6., A.7., A.8., A.9. and H. | Air quality control; definitions [city and town requirements in Area A regarding targeting unpaved roads and shoulders; leaf blower restrictions; restrictions related to parking, maneuvering, ingress and egress areas and vacant lots; requirement for certified street sweepers] |
| A.R.S. § 9-500.27. | Off-road vehicle ordinance; applicability; violation; classification |
| A.R.S. § 11-871. Only A., B. and D.4. | Emissions control; no burn; exemptions; penalty [no burn restriction for any HPA day, increased civil penalty] |
| A.R.S. § 11-877. | Air quality control measures [county leaf blower restrictions] |
| A.R.S. § 28-1098. Only A. and C.1. | Vehicle loads; restrictions; civil penalties [for safety or air pollution prevention purpose] |
| A.R.S. § 49-424. Only 11. | Duties of department [develop and disseminate air quality dust forecasts for the Maricopa County PM-10 nonattainment area] |
| A.R.S. § 49-457.01. | Leaf blower use restrictions and training; leaf blower equipment sellers; informational material; outreach; applicability |
| A.R.S. § 49-457.03. | Off-road vehicles; pollution advisory days; applicability; penalties |
| A.R.S. § 49-457.04. | Off-highway vehicle and all-terrain vehicle dealers; informational material; outreach; applicability |
| A.R.S. § 49-457.05. Only A., B., C., D. and I. | Dust action general permit; best management practices; applicability; definitions |
| A.R.S. § 49-474.01. Only A.4., A.5., A.6., A.7., A.8., A.11., B. and H. | Additional board duties in vehicle emissions control areas; definitions [county requirements for stabilization of targeted unpaved roads, alleys and shoulders; restrictions related to parking, maneuvering, ingress and egress areas and vacant lots; requirement for certified street sweepers] |
| A.R.S. § 49-474.05. | Dust control; training; site coordinators |
| A.R.S. § 49-474.06. | Dust control; subcontractor registration; fee |
| A.R.S. § 49-501. Only A.2., B.1., C., F. and G. | Unlawful open burning; exceptions; civil penalty; definitions [ban on outdoor fires from May 1 to September 30; deletion of recreational purpose exemption; no burn day restrictions; penalty provision] |
| A.R.S. § 49-541. Only 1. | Definitions [Area A] |
| Maricopa County Air Quality Department Rules | Description |
| 310 | Fugitive Dust from Dust-Generating Operations Adopted 1/27/10 and submitted to EPA 4/12/10 [Notice of Final Rulemaking 75 FR 78167; 12/15/10] |
| 310.01 | Fugitive Dust From Non-Traditional Sources of Fugitive Dust Adopted 1/27/10 and submitted to EPA 4/12/10 [Notice of Final Rulemaking 75 FR 78167; 12/15/10] |
| 314 | Open Outdoor Fires and Indoor Fireplaces at Commercial and Institutional Establishments Adopted 3/12/08 and submitted to EPA 7/10/08 [Notice of Final Rulemaking 74 FR 57612; 11/9/09] |

Table 4–1 (Continued)

| Maricopa County Air Quality Department Rules | Description |
|---|--|
| 316 | Nonmetallic Mineral Processing Adopted 3/12/08 and submitted to EPA 7/10/08 [Notice of Final Rulemaking 74 FR 58553; 11/13/09] |
| Appendix C | Fugitive Dust Test Methods Adopted 3/26/08 and submitted to EPA 7/10/08 [Notice of Final Rulemaking 75 FR 78167; 12/15/10] |
| Maricopa County Ordinance | Description |
| P-26 | Residential Woodburning Restriction Adopted 3/26/08 and submitted to EPA 7/10/08; [Notice of Final Rulemaking 74 FR 57612; 11/9/09] |
| Appendices to the Plan | Description |
| Appendix C, Exhibit 1 | Arizona Revised Statutes Listed in Table 4-1 |
| Appendix C, Exhibit 2 | Maricopa County Resolution to Evaluate Measures in the MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area |
| Appendix C, Exhibit 3 | Arizona Department of Environmental Quality Dust Action General Permit |
| Appendix C, Exhibit 4 | Arizona Department of Environmental Quality Commitment to Revise the MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area if Necessary for the Emerging and Voluntary Measure |

In addition to the statutes, rules and regulations listed in Table 4–1, other PM₁₀ reducing control measures (e.g., paving of unpaved roads, Agricultural Best Management Practices Program, Pinal County Fugitive Dust rules, etc.) have been committed to, and implemented by, local jurisdictions throughout the Maricopa County PM₁₀ nonattainment area, and incorporated into the Arizona SIP through prior PM₁₀ plans, such as the *Revised MAG 1999 Serious Area Particulate Plan for PM-10 for the Maricopa County Nonattainment Area*, and in separate EPA actions.

Implementation and Enforcement of Control Measures

The Maricopa County Air Quality Department (MCAQD) is prepared to proactively respond to high wind events and protect human health and well-being. MCAQD’s approach consists of two primary components: routine proactive inspections, as well as surveillance inspections, conducted both during and after significant events. MCAQD routinely inspects dust control-permitted sites and increases the frequency of inspections for permits covering areas of ten acres or more. Non-metallic surface mining sources under Rule 316 are also regularly inspected multiple times every year. Maricopa County also responds to the majority of air quality complaints within 24 hours.

Maricopa County monitors the five-day Maricopa County Dust Control Forecast issued by ADEQ to identify the potential for elevated PM₁₀ pollution levels due to high winds or stagnant conditions. When a High Pollution Advisory (HPA) is issued for Maricopa County, MCAQD conducts additional increased

surveillance before, during, and after the forecast event(s). MCAQD also conducts event surveillance and post-event activities after an exceptional event that had not been forecast (i.e., those instances in which an HPA had not been issued).

The Maricopa County Dust Control Forecast issued on September 26, 2016, indicated a Low risk for unhealthy PM₁₀ levels, but included the possibility of blowing dust associated with gusty winds from thunderstorm outflows. The actual thunderstorm outflow from the deserts of west-central Pinal County created and transported windblown dust into the nonattainment area, leading to the exceedances at the Glendale and JLG Supersite monitors on September 27-28, 2016.

Pre-event surveillance consists of surveying high-risk areas for any dust-generating activities, educating sources of the impending HPA event, and issuing violations for failure to comply with local, state, or federal regulations. During the event, MCAQD inspectors survey high-risk areas to confirm that control measures are in place, document any violations, and contact other regulatory agencies if necessary. Post-event activities include continued surveys of high-risk areas, re-inspecting sources within two business days of receiving a violation, and an internal MCAQD debriefing of event activities.

Currently, a total of 15 MCAQD air monitoring sites are equipped to allow the automatic reporting of monitored readings at 5-minute intervals. The real-time data reporting system includes a mechanism to alert MCAQD inspectors when PM₁₀ concentrations are elevated. The system allows MCAQD inspectors to review concentrations at the monitor and to consult the National Weather Service website to check for weather event activity. This capability allows the MCAQD responder to identify regional events and monitor specific issues. If necessary, the MCAQD responders can inform nearby stakeholders and local governments of the elevated PM₁₀ concentrations.

An evaluation of all inspection reports, air quality complaints, compliance reports, and other documentation indicate no evidence of unusual anthropogenic-based PM₁₀ emissions. During the time period of September 24 through October 1, 2016, MCAQD inspectors conducted a total of 272 inspections of permitted facilities, of which 165 were at fugitive dust sources.

During this 7-day period, a total of five Notice of Violations were issued county-wide for PM₁₀ and non-PM₁₀-related violations. No violations were issued to fugitive dust sources within a 4-mile radius of the exceeding Glendale or ADEQ's JLG Supersite monitor.

Also during this 7-day period, a total of 63 vacant lots were inspected, but only one 60-day letter was issued for non-compliant vacant lots and/or unpaved parking lots. This vacant lot was not located within 4-miles of the exceeding Glendale or ADEQ's JLG Supersite's monitors.

MCAQD was prepared for any complaints received due to the high wind event. During the 8-day period from September 24 through October 1, 2016, MCAQD received 30 complaints, of which 16 were windblown dust or PM₁₀ related. Two of these complaints were located within 4 miles of the exceeding JLG Supersite monitor. These complaints consisted of:

- A construction site at 32nd Avenue and Myrtle was creating dust with their heavy machinery. The complaint occurred on 9/27/16.
- A home demolition at 3rd Street and Glendale Avenue was creating dust. The complaint occurred on 9/28/16.

Inspections were completed for each of these complaints and no violations were noted, though some of the complaints were held for further observation. Additionally, during the period of September 24, 2016 through October 1, 2016, no unusual agricultural activity in the upwind vicinity of the exceeding Glendale and JLG Supersite monitors was noted by the Arizona Department of Environmental Quality.

Conclusion

In summary, the information presented in this chapter addresses whether the high wind dust event on September 27-28, 2016 was not reasonably preventable or controllable. EPA's approval of the *MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area* on June 10, 2014 allows the control measures in that plan to be established as reasonable controls. Sustained wind speeds were at the high wind threshold during the event, making it less likely that uncontrolled anthropogenic sources were the main source of the windblown dust emissions. The natural and anthropogenic sources of windblown dust during the event were identified, along with the enforceable control measures in place and implemented during the event. Extensive documentation of enforcement of the implemented control measures was provided by the Maricopa County Air Quality Department and the Arizona Department of Environmental Quality, revealing no evidence of unusual anthropogenic-based PM₁₀ emissions. For these reasons, the information presented in this chapter clearly demonstrates that the high wind dust event on September 27-28, 2016 was neither reasonably preventable nor controllable.

V. SUMMARY CONCLUSION

The documentation presented in the preceding chapters provides ample weight of evidence that the exceedances of the PM₁₀ standard on September 27-28, 2016 at the Glendale and JLG Supersite monitors in the Maricopa County nonattainment area was caused by a high wind dust event, qualifying the exceedance for exclusion under the revised exceptional events rule. A bulleted summary of the demonstrations included in this documentation that meet the requirements of 40 CFR Sections 50.14(c)(3)(iv)(A) through (E) is provided below:

- The narrative conceptual model discussed the meteorological conditions (thunderstorm outflow) that led to the creation of the high wind dust event on September 27-28, 2016. The narrative highlighted that a thunderstorm outflow with sustained winds of 25 mph and gusts of 41 mph originated in the deserts of west-central Pinal County. The windblown dust from the outflow then transported into the Maricopa County PM₁₀ nonattainment area with the passing of the thunderstorm outflow and remained suspended into the evening of September 27 and the morning of September 28, 2016. Tables and figures showing PM₁₀ concentrations during the event were included with the narrative, indicating the PM₁₀ concentrations on September 27-28, 2016 were elevated in conjunction with the arrival and suspension of windblown dust as compared to concentrations before and after the event.
- The monitored PM₁₀ concentrations on September 27-28, 2016 at the exceeding Glendale and JLG Supersite monitors were compared to historical concentrations at the sites in several analyses. The analyses confirm a clear causal relationship between the exceedances and the high wind dust event as compared to historical high wind dust event days and non-exceedance days.

In addition to the comparison to historical concentrations, figures displaying the chronological and spatial distribution of wind, visibility and PM₁₀ concentration data confirm that (1) sustained winds at 25 mph were high enough to entrain significant windblown dust from natural desert areas and disturbed, anthropogenic source areas subject to reasonable controls in the source area of the outflow; (2) PM₁₀ concentrations peaked transported windblown dust arrived in the PM₁₀ nonattainment area and when the windblown dust remained suspended in the nonattainment area throughout the evening of September 27 and the morning of September 28, 2016; and (3) visibility conditions (as confirmed through visibility photos and NWS readings) at nonattainment area monitors where the thunderstorm outflow-generated windblown dust passed over or by were degraded as a result of the transported and suspended windblown dust from the high wind dust event. These analyses taken as a whole provide strong weight of evidence that the high wind dust event affected air quality in such a way that there exists a clear causal relationship between the high wind dust event on September 27-28, 2016 and the PM₁₀ exceedances at the Glendale and JLG Supersite monitors on September 27-28, 2016, thus satisfying the clear causal relationship criterion.

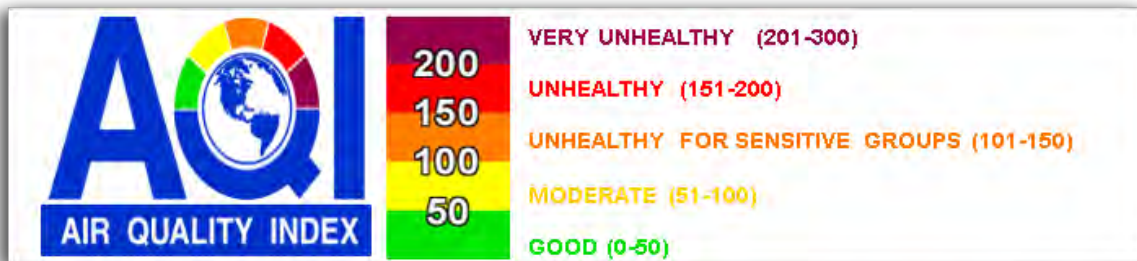
- The comparison to historical concentrations and the clear causal relationship demonstration found that high wind dust events can frequently recur at the exceeding Glendale and JLG Supersite monitors and that the PM₁₀ emissions which caused the exceedance at the monitors were associated with windblown dust generated and transported by sustained wind speeds at the default high wind threshold of 25 mph. EPA states that, “[f]or high wind dust events, if sustained wind speeds are above the high wind threshold and the anthropogenic emissions sources are reasonably controlled, it is more likely that human activity plays little or no direct role in causing emissions.” Since

reasonable controls were in place on all significant anthropogenic sources of windblown dust in the Maricopa County PM₁₀ nonattainment area during the event and sustained winds were at 25 mph in the source region of the outflow, the high wind dust event on September 27-28, 2016, qualifies as a natural event.

- EPA's approval of the *MAG 2012 Five Percent Plan for PM-10 for the Maricopa County Nonattainment Area* on June 10, 2014 allows the control measures in that plan to be established as reasonable controls. Sustained wind speeds were at the high wind threshold in the source region of the high wind dust event, making it unlikely that uncontrolled anthropogenic sources were the main source of the windblown dust emissions. The natural and anthropogenic sources of windblown dust during the event were identified, along with the enforceable control measures in place and implemented during the event. Extensive documentation of enforcement of the implemented control measures was provided by the Maricopa County Air Quality Department and the Arizona Department of Environmental Quality, revealing no evidence of unusual anthropogenic-based PM₁₀ emissions. For these reasons, the high wind dust event on September 27-28, 2016 was neither reasonably preventable nor controllable.

APPENDIX A

ADEQ FORECAST PRODUCTS



AIR QUALITY FORECAST ISSUED Monday, September 26, 2016

This report is updated by 1:00 p.m. Sunday thru Friday and is valid for areas within and bordering Maricopa County in Arizona

| FORECAST DATE NOTICES | YESTERDAY <u>Sun, 9/25/2016</u> | TODAY <u>Mon, 9/26/2016</u> | TOMORROW <u>Tue, 9/27/2016</u> | EXTENDED <u>Wed, 9/28/2016</u> |
|--------------------------|---|-----------------------------------|-----------------------------------|-----------------------------------|
| | | Pockets of blowing dust possible. | Pockets of blowing dust possible. | |
| AIR POLLUTANT | Highest AQI Reading/Site (*Preliminary data only*) | | | |
| O3 | 42 Multiple Sites | 42 Good | 46 Good | 58 Moderate |
| CO | 9 Central Phoenix | 6 Good | 6 Good | 8 Good |
| PM-10 | 21 Central Phoenix | 46 Good | 42 Good | 28 Good |
| PM-2.5 | 30 South Phoenix | 23 Good | 30 Good | 25 Good |

O3 = Ozone CO = Carbon Monoxide PM-10 = Particles 10 microns & smaller PM-2.5 = Particles smaller than 2.5 microns
 "High Pollution Advisory" (HPA) means that the highest concentration of OZONE, PM-10, or PM-2.5 may exceed the federal health standard.
 "Health Watch" (HW) means that the highest concentration of OZONE, PM-10 or PM-2.5 may approach the federal health standard.

| Health Statements | |
|---------------------|---------------------------------|
| Monday, 09/26/2016 | No health impacts are expected. |
| Tuesday, 09/27/2016 | No health impacts are expected. |

Synopsis and Discussion

Note: During active monsoon periods, strong outflow winds from even distant thunderstorms can generate periods of dense blowing dust.

We now have a large ridge over the western United States but the weather isn't as calm as you might expect because we also have a cut-off low located to our south. This low is increasing moisture and instability across southern Arizona. Additionally, there are strong easterly winds associated with the low. Along with the breezy winds, there is a chance for some light showers in the area today. Winds will still be fairly breezy tomorrow with a chance of showers and thunderstorms. The strong winds today and potential outflow winds from thunderstorms tomorrow will bring the possibility of some isolated dust activity. Fortunately, we expect soils are somewhat stable due to recent rains and with rain forecast to hit much of our dust source regions today and tomorrow, we don't anticipate PM-10 getting out of control. By Wednesday, weather conditions should calm down causing particulate levels to lower while allowing ozone to begin increasing.

Check back tomorrow for more. Until then, have a good day! –R.Nicoll

Check out our new reports on recent observed air quality data for [ozone](#), [PM-10](#), and [PM-2.5](#). The permanent location of the links will be in the "Useful Links" table below.

Check out the latest issue of:

Cracking the AQ Code

If you haven't already, click [HERE](#) to start receiving your
Daily Air Quality Forecasts through GovDelivery.



CLEAN AIR MAKE MORE

MARICOPA COUNTY'S INITIATIVE TO PROMOTE CLEANER AIR AND HEALTHIER LIVES

| USEFUL LINKS | |
|----------------------------------|--|
| INTERACTIVE MAPS | http://alert.fcd.maricopa.gov/alert/Google/v3/air.html http://www.airnow.gov/ |
| WEB CAMERA IMAGES | http://www.phoenixvis.net/ |
| RECENT OBSERVED AIR QUALITY DATA | Ozone PM-10 PM-2.5 |

POLLUTION MONITOR READINGS FOR Sunday, September 25, 2016

O3 (OZONE)

| SITE NAME | MAX 8-HR VALUE (PPB) | MAX AQI | AQI COLOR CODE |
|-------------------|----------------------|----------|----------------|
| Alamo Lake | NOT AVBL | NOT AVBL | |
| Apache Junction | 42 | 39 | |
| Blue Point | 42 | 39 | |
| Buckeye | 45 | 42 | |
| Casa Grande | 43 | 40 | |
| Cave Creek | 40 | 37 | |
| Central Phoenix | 41 | 38 | |
| Dysart | 40 | 37 | |
| Falcon Field | 41 | 38 | |
| Fountain Hills | 41 | 38 | |
| Glendale | 41 | 38 | |
| Humboldt Mountain | 43 | 40 | |
| Phoenix Supersite | 45 | 42 | |
| Mesa | 45 | 42 | |
| North Phoenix | 44 | 41 | |
| Pinal Air Park | 47 | 44 | |
| Pinnacle Peak | 41 | 38 | |
| Queen Valley | 44 | 41 | |
| Rio Verde | 38 | 35 | |
| South Phoenix | 43 | 40 | |
| South Scottsdale | 38 | 35 | |
| Tempe | 39 | 36 | |
| Tonto Nat'l Mon. | 40 | 37 | |
| West Chandler | 45 | 42 | |
| West Phoenix | 43 | 40 | |
| Yuma | 39 | 36 | |

CO (CARBON MONOXIDE)

| SITE NAME | MAX 8-HR VALUE (PPM) | MAX AQI | AQI COLOR CODE |
|-------------------|----------------------|----------|----------------|
| Buckeye | NOT AVBL | NOT AVBL | |
| Central Phoenix | 0.8 | 9 | |
| Diablo | 0.4 | 5 | |
| Phoenix Supersite | NOT AVBL | NOT AVBL | |
| Mesa | 0.2 | 2 | |
| West Chandler | 0.3 | 3 | |
| West Phoenix | 0.7 | 8 | |

PM-10 (PARTICLES)

| SITE NAME | MAX 24-HR VALUE (µg/m3) | MAX AQI | AQI COLOR CODE |
|-----------------------------|-------------------------|----------|----------------|
| Buckeye | 20.8 | 19 | |
| Central Phoenix | 23.4 | 21 | |
| Combs School (Pinal County) | 28 | 26 | |
| Durango | 15.3 | 14 | |
| Dysart | 13.4 | 12 | |
| Glendale | 10.5 | 9 | |
| Higley | NOT AVBL | NOT AVBL | |
| Maricopa (Pinal County) | 37.5 | 34 | |
| Phoenix Supersite | 15.5 | 14 | |
| Mesa | 9.3 | 8 | |
| North Phoenix | 8 | 7 | |
| South Phoenix | 18.9 | 17 | |
| South Scottsdale | 13.8 | 12 | |
| Tempe | 12.6 | 11 | |
| West Chandler | 18.3 | 17 | |
| West Forty Third | 23.3 | 21 | |
| West Phoenix | 14.5 | 13 | |
| Zuni Hills | 18.5 | 17 | |

PM-2.5 (PARTICLES)

| SITE NAME | MAX 24-HR VALUE (µg/m ³) | MAX AQI | AQI COLOR CODE |
|-------------------|--------------------------------------|---------|----------------|
| Diablo | 4.7 | 20 | |
| Durango | 6.1 | 25 | |
| Glendale | 2.2 | 9 | |
| Phoenix Supersite | 2.7 | 11 | |
| Mesa | 4.6 | 19 | |
| North Phoenix | 3.5 | 15 | |
| South Phoenix | 7.2 | 30 | |
| Tempe | 4.7 | 20 | |
| West Phoenix | 5.2 | 22 | |

DESCRIPTION OF LOCAL AIR POLLUTANTS IN DETAIL



O₃ (OZONE):

Description –

This is a secondary pollutant that is formed by the reaction of other primary pollutants (precursors) such as VOCs (volatile organic compounds) and NO_x (Nitrogen Oxides) in the presence of sunlight.

Sources – VOCs are emitted from motor vehicles, chemical plants, refineries, factories, and other industrial sources. NO_x is emitted from motor vehicles, power plants, and other sources of combustion.

Potential health impacts – Exposure to ozone can make people more susceptible to respiratory infection, result in lung inflammation, and aggravate pre-existing respiratory diseases such as asthma. Other effects include decrease in lung function, chest pain, and cough.

Unit of measurement – Parts per billion (ppb).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)

Reduction tips – Curtail daytime driving, refuel cars and use gasoline-powered equipment as late in the day as possible.

CO (CARBON MONOXIDE):

Description – A colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely.

Sources – In cities, as much as 95 percent of all CO emissions emanate from automobile exhaust. Other sources include industrial processes, non-transportation fuel combustion, and natural sources such as wildfires. Peak concentrations occur in colder winter months.

Potential health impacts – Reduces oxygen delivery to the body's organs and tissues. The health threat is most serious for those who suffer from cardiovascular disease.

Unit of measurement – Parts per million (ppm).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)

Reduction tips – Keep motor vehicle tuned properly and minimize nighttime driving.

PM-10 & PM-2.5 (PARTICLES):

Description – The term “particulate matter” (PM) includes both solid particles and liquid droplets found in air. Many manmade and natural sources emit PM directly or emit other pollutants that react in the atmosphere to form PM. Particles less than 10 micrometers in diameter tend to pose the greatest health concern because they can be inhaled into and accumulate in the respiratory

system. Particles less than 2.5 micrometers in diameter are referred to as “fine” particles and are responsible for many visibility degradations such as the “Valley Brown Cloud” (see <http://www.phoenixvis.net/>). Particles with diameters between 2.5 and 10 micrometers are referred to as “coarse”.

Sources – Fine = All types of combustion (motor vehicles, power plants, wood burning, etc.) and some industrial processes. Coarse = crushing or grinding operations and dust from paved or unpaved roads.

Potential health impacts – PM can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases, such as asthma and chronic bronchitis.

Units of measurement – Micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

Averaging interval – 24 hours (midnight to midnight).

Reduction tips – Stabilize loose soils, slow down on dirt roads, carpool, and use public transit.

Updated 8/11/2016



AIR QUALITY FORECAST ISSUED Tuesday, September 27, 2016

This report is updated by 1:00 p.m. Sunday thru Friday and is valid for areas within and bordering Maricopa County in Arizona

| FORECAST DATE NOTICES | YESTERDAY <u>Mon, 9/26/2016</u> | TODAY <u>Tue, 9/27/2016</u> Brief blowing dust possible. | TOMORROW <u>Wed, 9/28/2016</u> | EXTENDED <u>Thu, 9/29/2016</u> |
|--------------------------|---|---|-----------------------------------|-----------------------------------|
| AIR POLLUTANT | Highest AQI Reading/Site (*Preliminary data only*) | | | |
| O3 | 39 Humboldt Mountain | 46 Good | 50 Good | 58 Moderate |
| CO | 7 Diablo | 6 Good | 8 Good | 8 Good |
| PM-10 | 51 West Chandler | 53 Moderate | 35 Good | 32 Good |
| PM-2.5 | 30 Durango | 30 Good | 25 Good | 24 Good |

O3 = Ozone CO = Carbon Monoxide PM-10 = Particles 10 microns & smaller PM-2.5 = Particles smaller than 2.5 microns
 "High Pollution Advisory" (HPA) means that the highest concentration of OZONE, PM-10, or PM-2.5 may exceed the federal health standard.
 "Health Watch" (HW) means that the highest concentration of OZONE, PM-10 or PM-2.5 may approach the federal health standard.

| Health Statements | |
|-----------------------|---|
| Tuesday, 09/27/2016 | Unusually sensitive people should consider reducing prolonged or heavy exertion outdoors. |
| Wednesday, 09/28/2016 | No health impacts are expected. |

Synopsis and Discussion

Note: During active monsoon periods, strong outflow winds from even distant thunderstorms can generate periods of dense blowing dust.

There did end up being a little dust activity yesterday which barely tipped PM-10 into the Moderates. As for today, we continue to have breezy easterly winds due to the cut-off low located to the south. In addition to winds, we also currently have showers and thunderstorm to the southeast. Some of this activity may push into the Valley today but most of it is expected to stay to the south. The main air quality threat today will be dust associated with thunderstorm outflows. Blowing dust is possible but stable soils from recent rains and the brief nature of any outflows should prevent PM-10 levels from getting too high. We forecast potential low-Moderate levels of PM-10 due to brief blowing dust this afternoon. Weather conditions should begin calming down tomorrow and Thursday. This will allow particulates to drop back down into the mid-Good range, while ozone increases back into the Moderates. One potential exception is if Tropical Storm Roslyn advects more moisture into the area than anticipated, we may see active weather last longer into the week. Of course, we will continue monitor the weather and air quality for any changes.

Check back tomorrow for the latest. Until then, have a good day! –R.Nicoll

Check out our new reports on recent observed air quality data for [ozone](#), [PM-10](#), and [PM-2.5](#). The permanent location of the links will be in the “Useful Links” table below.

Check out the latest issue of:

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| USEFUL LINKS | |
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| INTERACTIVE MAPS | http://alert.fcd.maricopa.gov/alert/Google/v3/air.html http://www.airnow.gov/ |
| WEB CAMERA IMAGES | http://www.phoenixvis.net/ |

RECENT OBSERVED AIR QUALITY DATA

[Ozone](#)

[PM-10](#)

[PM-2.5](#)

POLLUTION MONITOR READINGS FOR Monday, September 26, 2016

[O3 \(OZONE\)](#)

| SITE NAME | MAX 8-HR VALUE (PPB) | MAX AQI | AQI COLOR CODE |
|-------------------|----------------------|----------|----------------|
| Alamo Lake | NOT AVBL | NOT AVBL | |
| Apache Junction | 40 | 37 | |
| Blue Point | 41 | 38 | |
| Buckeye | 39 | 36 | |
| Casa Grande | 37 | 34 | |
| Cave Creek | 40 | 37 | |
| Central Phoenix | 35 | 32 | |
| Dysart | 40 | 37 | |
| Falcon Field | 37 | 34 | |
| Fountain Hills | 40 | 37 | |
| Glendale | 40 | 37 | |
| Humboldt Mountain | 42 | 39 | |
| Phoenix Supersite | 40 | 37 | |
| Mesa | 39 | 36 | |
| North Phoenix | 40 | 37 | |
| Pinal Air Park | 37 | 34 | |
| Pinnacle Peak | 40 | 37 | |
| Queen Valley | 40 | 37 | |
| Rio Verde | 40 | 37 | |
| South Phoenix | 38 | 35 | |
| South Scottsdale | 34 | 31 | |
| Tempe | 37 | 34 | |
| Tonto Nat'l Mon. | 37 | 34 | |
| West Chandler | 40 | 37 | |
| West Phoenix | 37 | 34 | |
| Yuma | 42 | 39 | |

CO (CARBON MONOXIDE)

| SITE NAME | MAX 8-HR VALUE (PPM) | MAX AQI | AQI COLOR CODE |
|-------------------|----------------------|----------|----------------|
| Buckeye | NOT AVBL | NOT AVBL | |
| Central Phoenix | 0.5 | 6 | |
| Diablo | 0.6 | 7 | |
| Phoenix Supersite | NOT AVBL | NOT AVBL | |
| Mesa | 0.2 | 2 | |
| West Chandler | 0.2 | 2 | |
| West Phoenix | 0.5 | 6 | |

[PM-10 \(PARTICLES\)](#)

| SITE NAME | MAX 24-HR VALUE (µg/m3) | MAX AQI | AQI COLOR CODE |
|-----------|-------------------------|---------|----------------|
|-----------|-------------------------|---------|----------------|

| | | | |
|-----------------------------|----------|----------|--|
| Buckeye | 78.4 | 62 | |
| Central Phoenix | 48.3 | 44 | |
| Combs School (Pinal County) | 52.4 | 48 | |
| Durango | 39.5 | 36 | |
| Dysart | 31.6 | 29 | |
| Glendale | 27.3 | 25 | |
| Higley | NOT AVBL | NOT AVBL | |
| Maricopa (Pinal County) | 107.8 | 77 | |
| Phoenix Supersite | 36.7 | 33 | |
| Mesa | 40 | 37 | |
| North Phoenix | 28.3 | 26 | |
| South Phoenix | 29.6 | 27 | |
| South Scottsdale | 46.6 | 43 | |
| Tempe | 24.8 | 22 | |
| West Chandler | 55.9 | 51 | |
| West Forty Third | 53.7 | 49 | |
| West Phoenix | 31.6 | 29 | |
| Zuni Hills | 32.5 | 30 | |

PM-2.5 (PARTICLES)

| SITE NAME | MAX 24-HR VALUE (µg/m3) | MAX AQI | AQI COLOR CODE |
|-------------------|-------------------------|---------|----------------|
| Diablo | 6.7 | 28 | |
| Durango | 7.3 | 30 | |
| Glendale | 5.1 | 21 | |
| Phoenix Supersite | 6.6 | 28 | |
| Mesa | 7 | 29 | |
| North Phoenix | 6.3 | 26 | |
| South Phoenix | 5.5 | 23 | |
| Tempe | 4.4 | 18 | |
| West Phoenix | 6.9 | 29 | |

DESCRIPTION OF LOCAL AIR POLLUTANTS IN DETAIL



O3 (OZONE):

Description –

This is a secondary pollutant that is formed by the reaction of other primary pollutants (precursors) such as VOCs (volatile organic compounds) and NOx (Nitrogen Oxides) in the presence of sunlight.

Sources – VOCs are emitted from motor vehicles, chemical plants, refineries, factories, and other industrial sources. NOx is emitted from motor vehicles, power plants, and other sources of combustion.

Potential health impacts – Exposure to ozone can make people more susceptible to respiratory infection, result in lung inflammation, and aggravate pre-existing respiratory diseases such as asthma. Other effects include decrease in lung function, chest pain, and cough.

Unit of measurement – Parts per billion (ppb).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)

Reduction tips – Curtail daytime driving, refuel cars and use gasoline-powered equipment as late in the day as possible.

CO (CARBON MONOXIDE):

Description – A colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely.

Sources – In cities, as much as 95 percent of all CO emissions emanate from automobile exhaust. Other sources include industrial processes, non-transportation fuel combustion, and natural sources such as wildfires. Peak concentrations occur in colder winter months.

Potential health impacts – Reduces oxygen delivery to the body's organs and tissues. The health threat is most serious for those who suffer from cardiovascular disease.

Unit of measurement – Parts per million (ppm).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)

Reduction tips – Keep motor vehicle tuned properly and minimize nighttime driving.

PM-10 & PM-2.5 (PARTICLES):

Description – The term “particulate matter” (PM) includes both solid particles and liquid droplets found in air. Many manmade and natural sources emit PM directly or emit other pollutants that react in the atmosphere to form PM. Particles less than 10 micrometers in diameter tend to pose the greatest health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 micrometers in diameter are referred to as “fine” particles and are responsible for many visibility degradations such as the “Valley Brown Cloud” (see <http://www.phoenixvis.net/>). Particles with diameters between 2.5 and 10 micrometers are referred to as “coarse”.

Sources – Fine = All types of combustion (motor vehicles, power plants, wood burning, etc.) and some industrial processes. Coarse = crushing or grinding operations and dust from paved or unpaved roads.

Potential health impacts – PM can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases, such as asthma and chronic bronchitis.

Units of measurement – Micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

Averaging interval – 24 hours (midnight to midnight).

Reduction tips – Stabilize loose soils, slow down on dirt roads, carpool, and use public transit.

Updated 8/11/2016



AIR QUALITY FORECAST ISSUED Wednesday, September 28, 2016

This report is updated by 1:00 p.m. Sunday thru Friday and is valid for areas within and bordering Maricopa County in Arizona

| FORECAST DATE NOTICES | YESTERDAY <u>Tue, 9/27/2016</u> PM-10 Exceedance | TODAY <u>Wed, 9/28/2016</u> Dust earlier this morning | TOMORROW <u>Thu, 9/29/2016</u> | EXTENDED <u>Fri, 9/30/2016</u> |
|--------------------------|--|---|-----------------------------------|-----------------------------------|
| AIR POLLUTANT | Highest AQI Reading/Site (*Preliminary data only*) | | | |
| O3 | 46 Phoenix Supersite | 50 Good | 51 Moderate | 54 Moderate |
| CO | 7 Diablo | 8 Good | 8 Good | 7 Good |
| PM-10 | 135 Phoenix Supersite | 61 Moderate | 44 Good | 40 Good |
| PM-2.5 | 78 Phoenix Supersite | 57 Moderate | 36 Good | 28 Good |

O3 = Ozone CO = Carbon Monoxide PM-10 = Particles 10 microns & smaller PM-2.5 = Particles smaller than 2.5 microns
 "High Pollution Advisory" (HPA) means that the highest concentration of OZONE, PM-10, or PM-2.5 may exceed the federal health standard.
 "Health Watch" (HW) means that the highest concentration of OZONE, PM-10 or PM-2.5 may approach the federal health standard.

| Health Statements | |
|-----------------------|---|
| Wednesday, 09/28/2016 | Unusually sensitive people should consider reducing prolonged or heavy exertion outdoors. |
| Thursday, 09/29/2016 | Unusually sensitive people should consider reducing prolonged or heavy exertion outdoors. |

Synopsis and Discussion

During active monsoon periods, strong outflow winds from even distant thunderstorms can generate periods of dense blowing dust.

Note: Today's 24-hr average PM-10 concentration will exceed the federal health standard. We are not increasing the forecast to the Unhealthy for Sensitive Groups category and issuing a same-day High Pollution Advisory because the damage has already been done during the early morning hours. Elevated PM-10 concentrations lingered over from last night but are now back to normal levels and should stay there the remainder of the day.

Thunderstorm outflows from the south yesterday evening kicked up quite a bit of dust. We anticipated dust, however, we thought recent rains would prevent excessive amounts of dust and we thought it would move through quicker. High PM-10 concentrations ended up hanging around through the night and into the morning hours today. It resulted in PM-10 exceeding the federal health standard yesterday. As I mentioned in the note above, the PM-10 concentrations that lingered into this morning will be enough for another exceedance today. However, since air quality is now doing fine and is expected to remain so through the rest of the day, we will not issue a same-day HPA.

Looking at this afternoon, more thunderstorms will likely develop, however, they should stay off to the east and any outflows from the east pose less of a dust concern. As for Thursday, residual moisture and instability associated with a shortwave trough may continue to cause a couple showers and thunderstorm in the area. Then by Friday, calm weather with mostly sunny skies will prevail. With calmer weather on the way, ozone concentrations will likely rise, but not enough to be much of a concern. Additionally, particulates will improve without all the winds to kick up the dust.

Check back tomorrow for more. Until then, have a good day! –R.Nicoll

Check out our new reports on recent observed air quality data for [ozone](#), [PM-10](#), and [PM-2.5](#). The permanent location of the links will be in the "Useful Links" table below.

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| USEFUL LINKS | |
|----------------------------------|--|
| INTERACTIVE MAPS | http://alert.fcd.maricopa.gov/alert/Google/v3/air.html http://www.airnow.gov/ |
| WEB CAMERA IMAGES | http://www.phoenixvis.net/ |
| RECENT OBSERVED AIR QUALITY DATA | Ozone PM-10 PM-2.5 |

POLLUTION MONITOR READINGS FOR Tuesday, September 27, 2016

O3 (OZONE)

| SITE NAME | MAX 8-HR VALUE (PPB) | MAX AQI | AQI COLOR CODE |
|-------------------|----------------------|---------|----------------|
| Alamo Lake | 46 | 43 | |
| Apache Junction | 42 | 39 | |
| Blue Point | 40 | 37 | |
| Buckeye | 47 | 44 | |
| Casa Grande | 43 | 40 | |
| Cave Creek | 46 | 43 | |
| Central Phoenix | 44 | 41 | |
| Dysart | 46 | 43 | |
| Falcon Field | 45 | 42 | |
| Fountain Hills | 41 | 38 | |
| Glendale | 46 | 43 | |
| Humboldt Mountain | 44 | 41 | |
| Phoenix Supersite | 50 | 46 | |
| Mesa | 48 | 44 | |
| North Phoenix | 46 | 43 | |
| Pinal Air Park | 41 | 38 | |
| Pinnacle Peak | 43 | 40 | |
| Queen Valley | 42 | 39 | |
| Rio Verde | 38 | 35 | |
| South Phoenix | 47 | 44 | |
| South Scottsdale | 39 | 36 | |
| Tempe | 42 | 39 | |
| Tonto Nat'l Mon. | 40 | 37 | |
| West Chandler | 49 | 45 | |
| West Phoenix | 46 | 43 | |
| Yuma | 44 | 41 | |

CO (CARBON MONOXIDE)

| SITE NAME | MAX 8-HR VALUE (PPM) | MAX AQI | AQI COLOR CODE |
|-------------------|----------------------|----------|----------------|
| Buckeye | NOT AVBL | NOT AVBL | |
| Central Phoenix | 0.3 | 3 | |
| Diablo | 0.6 | 7 | |
| Phoenix Supersite | NOT AVBL | NOT AVBL | |
| Mesa | 0.2 | 2 | |
| West Chandler | 0.2 | 2 | |
| West Phoenix | 0.4 | 5 | |

PM-10 (PARTICLES)

| SITE NAME | MAX 24-HR VALUE (µg/m3) | MAX AQI | AQI COLOR CODE |
|-----------|-------------------------|---------|----------------|
|-----------|-------------------------|---------|----------------|

| | | | |
|-----------------------------|----------|----------|--|
| Buckeye | 37.1 | 34 | |
| Central Phoenix | 103.3 | 75 | |
| Combs School (Pinal County) | 46.2 | 43 | |
| Durango | 112.2 | 79 | |
| Dysart | 77.9 | 62 | |
| Glendale | 180.6 | 113 | |
| Higley | NOT AVBL | NOT AVBL | |
| Maricopa (Pinal County) | 70.8 | 58 | |
| Phoenix Supersite | 223.7 | 135 | |
| Mesa | 48.4 | 44 | |
| North Phoenix | 141.3 | 94 | |
| South Phoenix | 54.2 | 50 | |
| South Scottsdale | 114.4 | 80 | |
| Tempe | 67.1 | 57 | |
| West Chandler | 44.3 | 41 | |
| West Forty Third | 118.7 | 82 | |
| West Phoenix | 133.3 | 90 | |
| Zuni Hills | 138.7 | 92 | |

PM-2.5 (PARTICLES)

| SITE NAME | MAX 24-HR VALUE (µg/m3) | MAX AQI | AQI COLOR CODE |
|-------------------|-------------------------|---------|----------------|
| Diablo | 19.1 | 66 | |
| Durango | 12.4 | 52 | |
| Glendale | 19 | 66 | |
| Phoenix Supersite | 25 | 78 | |
| Mesa | 6.5 | 27 | |
| North Phoenix | 20.4 | 68 | |
| South Phoenix | 11.1 | 46 | |
| Tempe | 6.7 | 28 | |
| West Phoenix | 15.2 | 58 | |

DESCRIPTION OF LOCAL AIR POLLUTANTS IN DETAIL



O3 (OZONE):

Description –

This is a secondary pollutant that is formed by the reaction of other primary pollutants (precursors) such as VOCs (volatile organic compounds) and NO_x (Nitrogen Oxides) in the presence of sunlight.

Sources – VOCs are emitted from motor vehicles, chemical plants, refineries, factories, and other industrial sources. NO_x is emitted from motor vehicles, power plants, and other sources of combustion.

Potential health impacts – Exposure to ozone can make people more susceptible to respiratory infection, result in lung inflammation, and aggravate pre-existing respiratory diseases such as asthma. Other effects include decrease in lung function, chest pain, and cough.

Unit of measurement – Parts per billion (ppb).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)

Reduction tips – Curtail daytime driving, refuel cars and use gasoline-powered equipment as late in the day as possible.

CO (CARBON MONOXIDE):

Description – A colorless, odorless, poisonous gas formed when carbon in fuels is not burned completely.

Sources – In cities, as much as 95 percent of all CO emissions emanate from automobile exhaust. Other sources include industrial processes, non-transportation fuel combustion, and natural sources such as wildfires. Peak concentrations occur in colder winter months.

Potential health impacts – Reduces oxygen delivery to the body's organs and tissues. The health threat is most serious for those who suffer from cardiovascular disease.

Unit of measurement – Parts per million (ppm).

Averaging interval – Highest eight-hour period within a 24-hour period (midnight to midnight)

Reduction tips – Keep motor vehicle tuned properly and minimize nighttime driving.

PM-10 & PM-2.5 (PARTICLES):

Description – The term “particulate matter” (PM) includes both solid particles and liquid droplets found in air. Many manmade and natural sources emit PM directly or emit other pollutants that react in the atmosphere to form PM. Particles less than 10 micrometers in diameter tend to pose the greatest health concern because they can be inhaled into and accumulate in the respiratory system. Particles less than 2.5 micrometers in diameter are referred to as “fine” particles and are responsible for many visibility degradations such as the “Valley Brown Cloud” (see <http://www.phoenixvis.net/>). Particles with diameters between 2.5 and 10 micrometers are referred to as “coarse”.

Sources – Fine = All types of combustion (motor vehicles, power plants, wood burning, etc.) and some industrial processes. Coarse = crushing or grinding operations and dust from paved or unpaved roads.

Potential health impacts – PM can increase susceptibility to respiratory infections and can aggravate existing respiratory diseases, such as asthma and chronic bronchitis.

Units of measurement – Micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)

Averaging interval – 24 hours (midnight to midnight).

Reduction tips – Stabilize loose soils, slow down on dirt roads, carpool, and use public transit.

Updated 8/11/2016



MARICOPA COUNTY DUST CONTROL FORECAST

ISSUED Monday, September 26, 2016

Five-day weather outlook:

Note: During active monsoon periods, strong outflow winds from even distant thunderstorms can generate periods of dense blowing dust.

Active weather is expected today and tomorrow, then calming down the rest of the week. We are currently under a large ridge, but the primary feature influencing our weather right now is a cut-off low located to our south. The low is advecting moisture into the area and creating some instability. Today will be mostly cloudy with a chance for some light showers reaching into the Valley. Additionally, winds will be quite breezy out of the east due to the low pressure system. Tomorrow, winds will still be a little breezy but we will also have a chance for gusty winds associated with thunderstorms. Ultimately, we expect soils are somewhat stable due to recent rains and with rain forecast to hit much of our dust source regions today and tomorrow, we don't anticipate dust getting out of control. A few isolated pockets of blowing dust will be possible, but nothing too significant is forecast. After tomorrow, calmer conditions will settle in and other than slightly elevated dust levels in the morning due to stagnation, no major dust concerns are anticipated. Therefore, the dust risk is forecast to remain Low through the forecast period. Check back tomorrow for the next update. –R.Nicoll

R I S K F A C T O R S

| | <u>WINDS</u> | | <u>STAGNATION</u> | | <u>DUST RISK LEVEL</u> |
|------------------------------|--|---|----------------------------------|---|------------------------|
| Day 1: Tue. 9/27/2016 | Breezy, east-southeasterly winds in the morning, 10-15 mph; afternoon storm outflows possible. | + | No stagnation. | = | LOW |
| Day 2: Wed. 9/28/2016 | Mainly light winds expected. | + | Light stagnation in the morning. | = | LOW |
| Day 3: Thu. 9/29/2016 | Mainly light winds expected. | + | Light stagnation in the morning. | = | LOW |

EXTENDED OUTLOOK

| | | | | | |
|------------------------------|------------------------------|---|----------------------------------|---|------------|
| Day 4: Fri. 9/30/2016 | Mainly light winds expected. | + | Light stagnation in the morning. | = | LOW |
| Day 5: Sat. 10/1/2016 | Mainly light winds expected. | + | Light stagnation in the morning. | = | LOW |

The Maricopa County Dust Control Action Forecast is issued to assist in the planning of work activities to help reduce dust pollution. To review the complete air quality forecast for the Phoenix metropolitan area, as well as the health impacts for different air pollutants refer to ADEQ's Air Quality Forecast at

Check out the latest issue of:

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Updated 8/11/2016



MARICOPA COUNTY DUST CONTROL FORECAST

ISSUED Tuesday, September 27, 2016

Five-day weather outlook:

Note: During active monsoon periods, strong outflow winds from even distant thunderstorms can generate periods of dense blowing dust.

Brief blowing dust is possible this afternoon due to thunderstorm activity to our south. As for the forecast period (Wednesday-Sunday), no major dust issues are expected. Weather conditions are calming down as the cut-off low, which is currently causing the active weather, dissipates and is reabsorbed into the main flow. Lack of winds will prevent a blowing dust event and stagnation is not forecast to be strong enough for a stagnation dust event. Over the weekend, winds will begin to increase due to an approaching trough, however at this time, winds do not look like they will be strong enough for a significant dust threat. Therefore, the dust risk will remain Low through the forecast period. Check back tomorrow for the next update. -R.Nicoll

R I S K F A C T O R S

| | <u>WINDS</u> | | <u>STAGNATION</u> | | <u>DUST RISK LEVEL</u> |
|------------------------------|------------------------------|---|----------------------------------|---|------------------------|
| Day 1: Wed. 9/28/2016 | Variable winds 5-10 mph. | + | Light stagnation in the morning. | = | LOW |
| Day 2: Thu. 9/29/2016 | Mainly light winds expected. | + | Light stagnation in the morning. | = | LOW |
| Day 3: Fri. 9/30/2016 | Mainly light winds expected. | + | Light stagnation in the morning. | = | LOW |

EXTENDED OUTLOOK

| | | | | | |
|------------------------------|-------------------------------|---|----------------------------------|---|------------|
| Day 4: Sat. 10/1/2016 | Westerly winds 5-10 mph. | + | Light stagnation in the morning. | = | LOW |
| Day 5: Sun. 10/2/2016 | Southwesterly winds 5-15 mph. | + | Light stagnation in the morning. | = | LOW |

The Maricopa County Dust Control Action Forecast is issued to assist in the planning of work activities to help reduce dust pollution. To review the complete air quality forecast for the Phoenix metropolitan area, as well as the health impacts for different air pollutants refer to ADEQ's Air Quality Forecast at <http://legacy.azdeq.gov/environ/air/ozone/ensemble.pdf>.

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Updated 8/11/2016



MARICOPA COUNTY DUST CONTROL FORECAST

ISSUED Wednesday, September 28, 2016

Five-day weather outlook:

Note: During active monsoon periods, strong outflow winds from even distant thunderstorms can generate periods of dense blowing dust.

Dust ended up being more significant than anticipated yesterday. Even with the recent rains around the area, thunderstorm outflows were able to kick up quite a bit of dust. Then, what really hurt was how long the dust lingered. Elevated dust levels continued from yesterday evening into the early morning hours today. The PM-10 24-hr average exceeded the federal health standard yesterday, and will do so today as well, but today's will be due to the early morning concentrations. As of now, the dust levels in the atmosphere are doing great with no major issues expected the rest of the day. Thunderstorm activity should stay off to the east today which doesn't pose as much of a dust risk. A chance for showers and thunderstorms around the area will continue tomorrow but we don't expect strong enough storms to cause a significant dust threat. After tomorrow, weather conditions will calm down and dust activity will be even more unlikely. Overall, we don't expect to have dust issues like we did last night and this morning. Therefore, we forecast the dust risk to be Low through the forecast period. Check back tomorrow for the next update. -R.Nicoll

R I S K F A C T O R S

| | <u>WINDS</u> | | <u>STAGNATION</u> | | <u>DUST RISK LEVEL</u> |
|------------------------------|--|---|----------------------------------|---|------------------------|
| Day 1: Thu. 9/29/2016 | Light winds with some afternoon breeziness possible. | + | Light stagnation in the morning. | = | LOW |
| Day 2: Fri. 9/30/2016 | Mainly light winds expected. | + | Light stagnation in the morning. | = | LOW |
| Day 3: Sat. 10/1/2016 | Westerly winds 5-10 mph. | + | Light stagnation in the morning. | = | LOW |

EXTENDED OUTLOOK

| | | | | | |
|------------------------------|-------------------------------|---|----------------|---|------------|
| Day 4: Sun. 10/2/2016 | Southwesterly winds 5-15 mph. | + | No stagnation. | = | LOW |
| Day 5: Mon. 10/3/2016 | Northwesterly winds 5-15 mph. | + | No stagnation. | = | LOW |

The Maricopa County Dust Control Action Forecast is issued to assist in the planning of work activities to help reduce dust pollution. To review the complete air quality forecast for the Phoenix metropolitan area, as well as the health impacts for different air pollutants refer to ADEQ's Air Quality Forecast at <http://legacy.azdeq.gov/environ/air/ozone/ensemble.pdf>.

Check out the latest issue of:

Cracking the AQ Code

If you haven't already, click [HERE](#) to start receiving your
Daily Air Quality Forecasts through GovDelivery.



Updated 8/11/2016

APPENDIX B

NWS METEOROLOGICAL OBSERVATIONS

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
BUCKEYE MUNICIPAL AIRPORT (00226)
BUCKEYE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1021 ft. above sea level

Latitude: 33.417

Longitude: -112.683

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti-meter (in. hg) |
|------|------------|--------------|----------------------|-----------------|--------------|---------------|------|---------------|------|----------------|------|------------|------------------|----------|------------------|---------------------------|------------|-------------------|-----------------------------|-------------|--------------------|---------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0015 | 0 | SCT120 | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 6 | 100 | | 28.92 | | | M | AA | | 30.01 |
| 27 | 0035 | 0 | CLR | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 6 | 120 | | 28.92 | | | M | AA | | 30.01 |
| 27 | 0055 | 0 | FEW120 | 10.00 | | 72 | 22.0 | 59 | 14.7 | 48 | 9.0 | 43 | 5 | 110 | | 28.91 | | | M | AA | | 30.00 |
| 27 | 0115 | 0 | FEW120 | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 8 | 110 | | 28.90 | | | M | AA | | 29.99 |
| 27 | 0135 | 0 | BKN120 | 10.00 | | 75 | 24.0 | 59 | 14.8 | 46 | 8.0 | 36 | 15 | 080 | 20 | 28.90 | | | M | AA | | 29.99 |
| 27 | 0215 | 0 | BKN120 | 10.00 | | 75 | 24.0 | 59 | 14.8 | 46 | 8.0 | 36 | 14 | 090 | | 28.90 | | | M | AA | | 29.99 |
| 27 | 0235 | 0 | OVC120 | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 11 | 090 | | 28.89 | | | M | AA | | 29.98 |
| 27 | 0255 | 0 | BKN120 | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 9 | 080 | | 28.88 | | | M | AA | | 29.97 |
| 27 | 0315 | 0 | SCT120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 11 | 090 | | 28.88 | | | M | AA | | 29.97 |
| 27 | 0335 | 0 | OVC120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 11 | 070 | | 28.88 | | | M | AA | | 29.97 |
| 27 | 0355 | 0 | OVC120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 10 | 090 | | 28.88 | | | M | AA | | 29.97 |
| 27 | 0415 | 0 | OVC120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 10 | 080 | | 28.88 | | | M | AA | | 29.97 |
| 27 | 0435 | 0 | SCT120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 14 | 080 | | 28.89 | | | M | AA | | 29.98 |
| 27 | 0455 | 0 | CLR | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 15 | 080 | 18 | 28.88 | | | M | AA | | 29.97 |
| 27 | 0515 | 0 | BKN120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 13 | 080 | | 28.89 | | | M | AA | | 29.98 |
| 27 | 0535 | 0 | OVC120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 14 | 070 | | 28.89 | | | M | AA | | 29.98 |
| 27 | 0555 | 0 | OVC120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 14 | 100 | | 28.90 | | | M | AA | | 29.99 |
| 27 | 0615 | 0 | OVC120 | 10.00 | | 72 | 22.0 | 58 | 14.2 | 46 | 8.0 | 40 | 13 | 090 | | 28.90 | | | M | AA | | 29.99 |
| 27 | 0635 | 0 | BKN120 | 10.00 | | 72 | 22.0 | 58 | 14.2 | 46 | 8.0 | 40 | 13 | 070 | | 28.91 | | | M | AA | | 30.00 |
| 27 | 0655 | 0 | FEW120 | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 11 | 090 | | 28.92 | | | M | AA | | 30.01 |
| 27 | 0715 | 0 | CLR | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 14 | 090 | | 28.92 | | | M | AA | | 30.01 |
| 27 | 0735 | 0 | CLR | 10.00 | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 20 | 090 | 26 | 28.93 | | | M | AA | | 30.02 |
| 27 | 0755 | 0 | CLR | 10.00 | | 75 | 24.0 | 59 | 14.8 | 46 | 8.0 | 36 | 22 | 090 | 26 | 28.92 | | | M | AA | | 30.01 |
| 27 | 0815 | 0 | CLR | 10.00 | | 75 | 24.0 | 59 | 14.8 | 46 | 8.0 | 36 | 16 | 080 | 26 | 28.92 | | | M | AA | | 30.01 |
| 27 | 0835 | 0 | CLR | 10.00 | | 77 | 25.0 | 60 | 15.7 | 48 | 9.0 | 36 | 18 | 070 | 24 | 28.92 | | | M | AA | | 30.01 |
| 27 | 0855 | 0 | CLR | 10.00 | | 77 | 25.0 | 60 | 15.7 | 48 | 9.0 | 36 | 22 | 090 | 29 | 28.93 | | | M | AA | | 30.02 |
| 27 | 0915 | 0 | CLR | 10.00 | | 79 | 26.0 | 60 | 15.7 | 46 | 8.0 | 31 | 20 | 080 | 23 | 28.93 | | | M | AA | | 30.02 |
| 27 | 0935 | 0 | CLR | 10.00 | | 81 | 27.0 | 62 | 16.6 | 48 | 9.0 | 32 | 21 | 090 | 31 | 28.94 | | | M | AA | | 30.03 |
| 27 | 0955 | 0 | CLR | 10.00 | | 79 | 26.0 | 61 | 16.2 | 48 | 9.0 | 34 | 20 | 100 | 25 | 28.94 | | | M | AA | | 30.03 |
| 27 | 1015 | 0 | CLR | 10.00 | | 79 | 26.0 | 61 | 16.2 | 48 | 9.0 | 34 | 22 | 090 | 29 | 28.94 | | | M | AA | | 30.03 |
| 27 | 1035 | 0 | CLR | 10.00 | | 79 | 26.0 | 61 | 16.2 | 48 | 9.0 | 34 | 21 | 090 | 25 | 28.94 | | | M | AA | | 30.03 |
| 27 | 1055 | 0 | CLR | 10.00 | | 79 | 26.0 | 61 | 16.2 | 48 | 9.0 | 34 | 17 | 100 | | 28.94 | | | M | AA | | 30.03 |
| 27 | 1115 | 0 | CLR | 10.00 | | 77 | 25.0 | 60 | 15.7 | 48 | 9.0 | 36 | 17 | 090 | | 28.93 | | | M | AA | | 30.02 |
| 27 | 1135 | 0 | CLR | 10.00 | | 81 | 27.0 | 62 | 16.5 | 48 | 9.0 | 32 | 17 | 100 | | 28.91 | | | M | AA | | 30.00 |
| 27 | 1155 | 0 | CLR | 10.00 | | 81 | 27.0 | 63 | 17.0 | 50 | 10.0 | 34 | 14 | 100 | 20 | 28.91 | | | M | AA | | 30.00 |
| 27 | 1215 | 0 | CLR | 10.00 | | 82 | 28.0 | 62 | 16.7 | 48 | 9.0 | 31 | 14 | 100 | 22 | 28.90 | | | M | AA | | 29.99 |
| 27 | 1235 | 0 | CLR | 10.00 | | 82 | 28.0 | 62 | 16.7 | 48 | 9.0 | 31 | 20 | 090 | | 28.89 | | | M | AA | | 29.98 |
| 27 | 1255 | 0 | CLR | 10.00 | | 82 | 28.0 | 62 | 16.7 | 48 | 9.0 | 31 | 16 | 090 | 21 | 28.87 | | | M | AA | | 29.96 |
| 27 | 1315 | 0 | CLR | 10.00 | | 84 | 29.0 | 63 | 17.1 | 48 | 9.0 | 29 | 16 | 060 | 20 | 28.86 | | | M | AA | | 29.95 |
| 27 | 1335 | 0 | CLR | 10.00 | | 84 | 29.0 | 63 | 17.1 | 48 | 9.0 | 29 | 15 | 100 | 23 | 28.85 | | | M | AA | | 29.94 |
| 27 | 1355 | 0 | CLR | 10.00 | | 84 | 29.0 | 64 | 17.6 | 50 | 10.0 | 31 | 15 | 110 | | 28.84 | | | M | AA | | 29.93 |
| 27 | 1415 | 0 | CLR | 10.00 | | 84 | 29.0 | 64 | 17.6 | 50 | 10.0 | 31 | 15 | 110 | 21 | 28.84 | | | M | AA | | 29.93 |
| 27 | 1435 | 0 | CLR | 10.00 | | 84 | 29.0 | 63 | 17.1 | 48 | 9.0 | 29 | 13 | 100 | 20 | 28.84 | | | M | AA | | 29.93 |
| 27 | 1455 | 0 | CLR | 10.00 | | 86 | 30.0 | 64 | 18.0 | 50 | 10.0 | 29 | 15 | 110 | 21 | 28.83 | | | M | AA | | 29.92 |
| 27 | 1515 | 0 | CLR | 10.00 | | 84 | 29.0 | 63 | 17.1 | 48 | 9.0 | 29 | 13 | 110 | | 28.83 | | | M | AA | | 29.92 |
| 27 | 1535 | 0 | CLR | 10.00 | | 84 | 29.0 | 64 | 17.6 | 50 | 10.0 | 31 | 13 | 110 | 17 | 28.82 | | | M | AA | | 29.91 |
| 27 | 1555 | 0 | CLR | 10.00 | | 86 | 30.0 | 64 | 18.0 | 50 | 10.0 | 29 | 11 | 100 | 17 | 28.81 | | | M | AA | | 29.90 |
| 27 | 1615 | 0 | CLR | 10.00 | | 86 | 30.0 | 64 | 18.0 | 50 | 10.0 | 29 | 13 | 100 | | 28.81 | | | M | AA | | 29.90 |
| 27 | 1635 | 0 | CLR | 10.00 | | 86 | 30.0 | 64 | 17.5 | 48 | 9.0 | 27 | 10 | 080 | | 28.81 | | | M | AA | | 29.90 |
| 27 | 1655 | 0 | CLR | 10.00 | | 86 | 30.0 | 64 | 17.5 | 48 | 9.0 | 27 | 8 | 090 | | 28.80 | | | M | AA | | 29.89 |
| 27 | 1715 | 0 | CLR | 10.00 | | 86 | 30.0 | 64 | 17.5 | 48 | 9.0 | 27 | 8 | 080 | | 28.80 | | | M | AA | | 29.89 |
| 27 | 1735 | 0 | CLR | 10.00 | | 86 | 30.0 | 64 | 17.5 | 48 | 9.0 | 27 | 8 | 060 | | 28.79 | | | M | AA | | 29.88 |
| 27 | 1755 | 0 | CLR | 10.00 | | 84 | 29.0 | 63 | 17.1 | 48 | 9.0 | 29 | 7 | 060 | | 28.79 | | | M | AA | | 29.88 |
| 27 | 1815 | 0 | CLR | 10.00 | | 84 | 29.0 | 63 | 17.1 | 48 | 9.0 | 29 | 8 | 050 | | 28.80 | | | M | AA | | 29.89 |
| 27 | 1835 | 0 | CLR | 10.00 | | 82 | 28.0 | 62 | 16.7 | 48 | 9.0 | 31 | 5 | 060 | | 28.80 | | | M | AA | | 29.89 |
| 27 | 1855 | 0 | CLR | 10.00 | | 82 | 28.0 | 62 | 16.7 | 48 | 9.0 | 31 | 6 | 070 | | 28.81 | | | M | AA | | 29.90 |
| 27 | 1915 | 0 | CLR | 10.00 | | 81 | 27.0 | 62 | 16.5 | 48 | 9.0 | 32 | 3 | 060 | | 28.81 | | | M | AA | | 29.90 |
| 27 | 1935 | 0 | FEW003 | 10.00 | | 77 | 25.0 | 63 | 17.3 | 54 | 12.0 | 45 | 13 | 120 | | 28.82 | | | M | AA | | 29.91 |
| 27 | 1955 | 0 | FEW003 SCT120 | 10.00 | | 77 | 25.0 | 62 | 16.7 | 52 | 11.0 | 42 | 9 | 130 | | 28.82 | | | M | AA | | 29.91 |
| 27 | 2015 | 0 | SCT037 BKN120 | 10.00 | | 75 | 24.0 | 62 | 16.3 | 52 | 11.0 | 45 | 5 | 100 | | 28.82 | | | M | AA | | 29.91 |
| 27 | 2035 | 0 | FEW037 OVC120 | 10.00 | | 75 | 24.0 | 62 | 16.3 | 52 | 11.0 | 45 | 5 | 020 | | 28.82 | | | M | AA | | 29.91 |
| 27 | 2055 | 0 | OVC120 | 10.00 | | 75 | 24.0 | 61 | 15.8 | 50 | 10.0 | 42 | 5 | 070 | | 28.83 | | | M | AA | | 29.92 |
| 27 | 2115 | 0 | FEW033 FEW049 OVC120 | 10.00 | | 75 | 24.0 | 61 | 15.8 | 50 | 10.0 | 42 | 6 | 090 | | 28.83 | | | M | AA | | 29.92 |
| 27 | 2135 | 0 | FEW | | | | | | | | | | | | | | | | | | | |

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
BUCKEYE MUNICIPAL AIRPORT (00226)
BUCKEYE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1021 ft. above sea level

Latitude: 33.417

Longitude: -112.683

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti-meter (in. hg) |
|------|------------|--------------|----------------|-----------------|--------------|---------------|------|---------------|------|----------------|------|------------|------------------|----------|------------------|---------------------------|------------|-------------------|-----------------------------|-------------|--------------------|---------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0015 | 0 | BKN100 | 10.00 | | 73 | 23.0 | 60 | 15.4 | 50 | 10.0 | 44 | 5 | 360 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0035 | 0 | OVC110 | 10.00 | | 73 | 23.0 | 60 | 15.4 | 50 | 10.0 | 44 | 6 | 340 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0055 | 0 | OVC120 | 10.00 | | 73 | 23.0 | 60 | 15.4 | 50 | 10.0 | 44 | 3 | 330 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0115 | 0 | FEW120 | 8.00 | | 72 | 22.0 | 59 | 15.2 | 50 | 10.0 | 46 | 6 | 350 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0135 | 0 | CLR | 8.00 | | 72 | 22.0 | 59 | 14.7 | 48 | 9.0 | 43 | 3 | 320 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0155 | 0 | M | 10.00 | | 72 | 22.0 | 59 | 14.7 | 48 | 9.0 | 43 | 6 | 340 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0215 | 0 | BKN025 | 10.00 | | 70 | 21.0 | 58 | 14.2 | 48 | 9.0 | 46 | 0 | 000 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0235 | 0 | SCT025 | 10.00 | | 70 | 21.0 | 58 | 14.2 | 48 | 9.0 | 46 | 3 | 010 | | 28.82 | | | M | AA | | 29.91 |
| 28 | 0255 | 0 | CLR | 10.00 | | 68 | 20.0 | 60 | 15.4 | 54 | 12.0 | 61 | 5 | 150 | | 28.82 | | | M | AA | | 29.91 |
| 28 | 0315 | 0 | SCT003 | 10.00 | | 66 | 19.0 | 59 | 15.0 | 54 | 12.0 | 65 | 0 | 000 | | 28.82 | | | M | AA | | 29.91 |
| 28 | 0335 | 0 | OVC002 | 7.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 0 | 000 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0355 | 0 | OVC002 | 8.00 | | 66 | 19.0 | 57 | 13.9 | 50 | 10.0 | 57 | 3 | 330 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0415 | 0 | OVC002 | 7.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 0 | 000 | | 28.84 | | | M | AA | | 29.93 |
| 28 | 0435 | 0 | OVC002 | 6.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 0 | 000 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0455 | 0 | OVC002 | 7.00 | | 68 | 20.0 | 57 | 13.8 | 48 | 9.0 | 49 | 6 | 330 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0515 | 0 | SCT002 | 7.00 | | 68 | 20.0 | 57 | 13.8 | 48 | 9.0 | 49 | 0 | 000 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 0535 | 0 | CLR | 8.00 | | 66 | 19.0 | 57 | 13.9 | 50 | 10.0 | 57 | 0 | 000 | | 28.84 | | | M | AA | | 29.93 |
| 28 | 0555 | 0 | FEW120 | 10.00 | | 70 | 21.0 | 60 | 15.3 | 52 | 11.0 | 53 | 5 | 110 | | 28.84 | | | M | AA | | 29.93 |
| 28 | 0615 | 0 | BKN110 | 7.00 | | 68 | 20.0 | 60 | 15.4 | 54 | 12.0 | 61 | 3 | 170 | | 28.85 | | | M | AA | | 29.94 |
| 28 | 0635 | 0 | SCT110 | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 13 | 100 | | 28.86 | | | M | AA | | 29.95 |
| 28 | 0655 | 0 | FEW110 | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 10 | 100 | | 28.86 | | | M | AA | | 29.95 |
| 28 | 0715 | 0 | CLR | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 13 | 090 | | 28.87 | | | M | AA | | 29.96 |
| 28 | 0735 | 0 | CLR | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 13 | 090 | 18 | 28.87 | | | M | AA | | 29.96 |
| 28 | 0755 | 0 | CLR | 10.00 | | 77 | 25.0 | 63 | 17.3 | 54 | 12.0 | 45 | 11 | 080 | | 28.88 | | | M | AA | | 29.97 |
| 28 | 0815 | 0 | SCT100 | 10.00 | | 77 | 25.0 | 65 | 18.1 | 57 | 14.0 | 50 | 8 | 150 | | 28.89 | | | M | AA | | 29.98 |
| 28 | 0835 | 0 | SCT100 | 10.00 | | 77 | 25.0 | 65 | 18.1 | 57 | 14.0 | 50 | 5 | 150 | | 28.89 | | | M | AA | | 29.98 |
| 28 | 0855 | 0 | FEW100 | 10.00 | | 81 | 27.0 | 66 | 18.9 | 57 | 14.0 | 44 | 9 | 130 | | 28.89 | | | M | AA | | 29.98 |
| 28 | 0915 | 0 | CLR | 10.00 | | 82 | 28.0 | 65 | 18.3 | 54 | 12.0 | 38 | 14 | 100 | 17 | 28.89 | | | M | AA | | 29.98 |
| 28 | 0935 | 0 | CLR | 10.00 | | 84 | 29.0 | 66 | 18.6 | 54 | 12.0 | 36 | 15 | 090 | 18 | 28.90 | | | M | AA | | 29.99 |
| 28 | 0955 | 0 | CLR | 10.00 | | 84 | 29.0 | 66 | 18.6 | 54 | 12.0 | 36 | 11 | 110 | 22 | 28.89 | | | M | AA | | 29.98 |
| 28 | 1035 | 0 | CLR | 10.00 | | 86 | 30.0 | 67 | 19.3 | 55 | 13.0 | 35 | 13 | 110 | | 28.89 | | | M | AA | | 29.98 |
| 28 | 1055 | 0 | CLR | 10.00 | | 86 | 30.0 | 67 | 19.3 | 55 | 13.0 | 35 | 16 | 110 | 23 | 28.89 | | | M | AA | | 29.98 |
| 28 | 1115 | 0 | CLR | 10.00 | | 86 | 30.0 | 67 | 19.3 | 55 | 13.0 | 35 | 13 | 110 | | 28.89 | | | M | AA | | 29.98 |
| 28 | 1135 | 0 | CLR | 10.00 | | 88 | 31.0 | 67 | 19.6 | 55 | 13.0 | 33 | 11 | 110 | 18 | 28.88 | | | M | AA | | 29.97 |
| 28 | 1155 | 0 | CLR | 10.00 | | 90 | 32.0 | 68 | 19.9 | 55 | 13.0 | 31 | 13 | 100 | 18 | 28.87 | | | M | AA | | 29.96 |
| 28 | 1215 | 0 | CLR | 10.00 | | 90 | 32.0 | 68 | 19.9 | 55 | 13.0 | 31 | 13 | 110 | 17 | 28.87 | | | M | AA | | 29.96 |
| 28 | 1235 | 0 | CLR | 10.00 | | 90 | 32.0 | 68 | 19.9 | 55 | 13.0 | 31 | 10 | 110 | 20 | 28.86 | | | M | AA | | 29.95 |
| 28 | 1255 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 10 | 120 | | 28.86 | | | M | AA | | 29.95 |
| 28 | 1315 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 8 | 130 | | 28.85 | | | M | AA | | 29.94 |
| 28 | 1335 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 7 | 120 | | 28.84 | | | M | AA | | 29.93 |
| 28 | 1355 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 5 | 140 | | 28.84 | | | M | AA | | 29.93 |
| 28 | 1415 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 9 | 110 | | 28.84 | | | M | AA | | 29.93 |
| 28 | 1435 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 19.9 | 54 | 12.0 | 29 | 3 | 010 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 1455 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 19.9 | 54 | 12.0 | 29 | 5 | 120 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 1515 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 19.9 | 54 | 12.0 | 29 | 5 | 090 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 1535 | 0 | SCT090 | 10.00 | | 93 | 34.0 | 68 | 20.2 | 54 | 12.0 | 27 | 8 | 100 | | 28.82 | | | M | AA | | 29.91 |
| 28 | 1555 | 0 | BKN090 | 10.00 | | 93 | 34.0 | 68 | 20.2 | 54 | 12.0 | 27 | 3 | 080 | | 28.82 | | | M | AA | | 29.91 |
| 28 | 1615 | 0 | SCT090 | 10.00 | | 93 | 34.0 | 68 | 20.2 | 54 | 12.0 | 27 | 5 | 120 | | 28.82 | | | M | AA | | 29.91 |
| 28 | 1635 | 0 | FEW090 | 10.00 | | 93 | 34.0 | 68 | 20.2 | 54 | 12.0 | 27 | 3 | 320 | | 28.81 | | | M | AA | | 29.90 |
| 28 | 1655 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 19.9 | 54 | 12.0 | 29 | 0 | 000 | | 28.81 | | | M | AA | | 29.90 |
| 28 | 1715 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 19.9 | 54 | 12.0 | 29 | 0 | 000 | | 28.81 | | | M | AA | | 29.90 |
| 28 | 1735 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 19.9 | 54 | 12.0 | 29 | 0 | 000 | | 28.81 | | | M | AA | | 29.90 |
| 28 | 1755 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 19.9 | 54 | 12.0 | 29 | 0 | 000 | | 28.81 | | | M | AA | | 29.90 |
| 28 | 1815 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 19.9 | 54 | 12.0 | 29 | 0 | 000 | | 28.82 | | | M | AA | | 29.91 |
| 28 | 1835 | 0 | SCT120 | 10.00 | | 90 | 32.0 | 68 | 19.7 | 54 | 12.0 | 29 | 0 | 000 | | 28.82 | | | M | AA | | 29.91 |
| 28 | 1855 | 0 | SCT120 | 10.00 | | 88 | 31.0 | 67 | 19.6 | 55 | 13.0 | 33 | 0 | 000 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 1915 | 0 | OVC120 | 5.00 | | 86 | 30.0 | 67 | 19.2 | 55 | 13.0 | 35 | 0 | 000 | | 28.83 | | | M | AA | | 29.92 |
| 28 | 1935 | 0 | BKN100 OVC120 | 10.00 | | 88 | 31.0 | 67 | 19.6 | 55 | 13.0 | 33 | 7 | 100 | | 28.84 | | | M | AA | | 29.93 |
| 28 | 1955 | 0 | OVC110 | 10.00 | | 84 | 29.0 | 67 | 19.4 | 57 | 14.0 | 40 | 7 | 110 | | 28.85 | | | M | AA | | 29.94 |
| 28 | 2015 | 0 | BKN120 | 10.00 | | 84 | 29.0 | 67 | 19.4 | 57 | 14.0 | 40 | 5 | 170 | | 28.86 | | | M | AA | | 29.95 |
| 28 | 2035 | 0 | SCT120 | 10.00 | | 82 | 28.0 | 66 | 19.1 | 57 | 14.0 | 43 | 0 | 000 | | 28.87 | | | M | AA | | 29.96 |
| 28 | 2055 | 0 | CLR | 10.00 | | 82 | 28.0 | 66 | 19.1 | 57 | 14.0 | 43 | 5 | 090 | | 28.87 | | | M | AA | | 29.96 |
| 28 | 2115 | 0 | CLR | 10.00 | | 82 | 28.0 | 66 | 19.1 | 57 | 14.0 | 43 | 8 | 090 | | | | | | | | |

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
CASA GRANDE MUNICIPAL ARPT (03914)
CASA GRANDE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1462 ft. above sea level

Latitude: 32.95

Longitude: -111.766

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti-meter (in. hg) |
|------|------------|--------------|----------------------|-----------------|--------------|---------------|------|---------------|------|----------------|------|------------|------------------|----------|------------------|---------------------------|------------|-------------------|-----------------------------|-------------|--------------------|---------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0015 | 0 | CLR | 10.00 | | 73 | 23.0 | 58 | 14.1 | 45 | 7.0 | 37 | 13 | 070 | | 28.47 | | | M | AA | | 30.02 |
| 27 | 0035 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.2 | 46 | 8.0 | 40 | 14 | 070 | | 28.47 | | | M | AA | | 30.02 |
| 27 | 0055 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 14 | 060 | | 28.47 | | | M | AA | | 30.02 |
| 27 | 0115 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 14 | 070 | | 28.47 | | | M | AA | | 30.02 |
| 27 | 0135 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 11 | 060 | | 28.46 | | | M | AA | | 30.01 |
| 27 | 0155 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 10 | 060 | | 28.46 | | | M | AA | | 30.01 |
| 27 | 0215 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 13 | 060 | | 28.46 | | | M | AA | | 30.01 |
| 27 | 0235 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 14 | 060 | | 28.45 | | | M | AA | | 30.00 |
| 27 | 0255 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 17 | 060 | 22 | 28.44 | | | M | AA | | 29.99 |
| 27 | 0315 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 18 | 060 | | 28.44 | | | M | AA | | 29.99 |
| 27 | 0335 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.1 | 46 | 8.0 | 40 | 16 | 060 | | 28.44 | | | M | AA | | 29.99 |
| 27 | 0355 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.1 | 46 | 8.0 | 40 | 15 | 070 | | 28.44 | | | M | AA | | 29.99 |
| 27 | 0415 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.1 | 46 | 8.0 | 40 | 14 | 080 | | 28.45 | | | M | AA | | 30.00 |
| 27 | 0435 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.1 | 46 | 8.0 | 40 | 15 | 070 | | 28.45 | | | M | AA | | 30.00 |
| 27 | 0455 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.1 | 46 | 8.0 | 40 | 17 | 070 | | 28.45 | | | M | AA | | 30.00 |
| 27 | 0515 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 13 | 070 | | 28.46 | | | M | AA | | 30.01 |
| 27 | 0535 | 0 | CLR | 10.00 | | 70 | 21.0 | 56 | 13.5 | 45 | 7.0 | 41 | 16 | 080 | 21 | 28.47 | | | M | AA | | 30.02 |
| 27 | 0555 | 0 | CLR | 10.00 | | 70 | 21.0 | 56 | 13.5 | 45 | 7.0 | 41 | 15 | 090 | | 28.48 | | | M | AA | | 30.03 |
| 27 | 0615 | 0 | CLR | 10.00 | | 70 | 21.0 | 57 | 13.7 | 46 | 8.0 | 42 | 15 | 100 | | 28.48 | | | M | AA | | 30.03 |
| 27 | 0635 | 0 | CLR | 10.00 | | 70 | 21.0 | 57 | 13.7 | 46 | 8.0 | 42 | 15 | 120 | | 28.48 | | | M | AA | | 30.04 |
| 27 | 0655 | 0 | CLR | 10.00 | | 70 | 21.0 | 57 | 13.7 | 46 | 8.0 | 42 | 10 | 100 | | 28.48 | | | M | AA | | 30.03 |
| 27 | 0715 | 0 | FEW090 | 10.00 | | 70 | 21.0 | 57 | 13.7 | 46 | 8.0 | 42 | 8 | 080 | | 28.48 | | | M | AA | | 30.04 |
| 27 | 0735 | 0 | CLR | 10.00 | | 70 | 21.0 | 57 | 13.7 | 46 | 8.0 | 42 | 8 | 050 | | 28.48 | | | M | AA | | 30.03 |
| 27 | 0755 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.2 | 46 | 8.0 | 40 | 17 | 060 | | 28.47 | | | M | AA | | 30.02 |
| 27 | 0815 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 20 | 080 | 24 | 28.48 | | | M | AA | | 30.04 |
| 27 | 0835 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.2 | 46 | 8.0 | 40 | 15 | 090 | 24 | 28.48 | | | M | AA | | 30.04 |
| 27 | 0855 | 0 | CLR | 10.00 | | 72 | 22.0 | 58 | 14.6 | 48 | 9.0 | 43 | 20 | 090 | 24 | 28.48 | | | M | AA | | 30.04 |
| 27 | 0915 | 0 | CLR | 10.00 | | 72 | 22.0 | 60 | 15.7 | 52 | 11.0 | 50 | 18 | 080 | 28 | 28.49 | | | M | AA | | 30.05 |
| 27 | 0935 | 0 | CLR | 10.00 | | 75 | 24.0 | 61 | 15.8 | 50 | 10.0 | 42 | 21 | 080 | 29 | 28.48 | | | M | AA | | 30.04 |
| 27 | 0955 | 0 | CLR | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 23 | 060 | | 28.48 | | | M | AA | | 30.03 |
| 27 | 1015 | 0 | CLR | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 24 | 070 | 29 | 28.48 | | | M | AA | | 30.03 |
| 27 | 1035 | 0 | CLR | 10.00 | | 73 | 23.0 | 61 | 15.9 | 52 | 11.0 | 48 | 20 | 070 | 29 | 28.47 | | | M | AA | | 30.02 |
| 27 | 1055 | 0 | CLR | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 22 | 090 | | 28.47 | | | M | AA | | 30.02 |
| 27 | 1115 | 0 | CLR | 10.00 | | 79 | 26.0 | 63 | 17.1 | 52 | 11.0 | 39 | 23 | 080 | 28 | 28.46 | | | M | AA | | 30.01 |
| 27 | 1135 | 0 | CLR | 10.00 | | 79 | 26.0 | 63 | 17.1 | 52 | 11.0 | 39 | 24 | 080 | 30 | 28.46 | | | M | AA | | 30.01 |
| 27 | 1155 | 0 | CLR | 10.00 | | 79 | 26.0 | 63 | 17.1 | 52 | 11.0 | 39 | 23 | 080 | 29 | 28.45 | | | M | AA | | 30.00 |
| 27 | 1215 | 0 | CLR | 10.00 | | 81 | 27.0 | 64 | 17.5 | 52 | 11.0 | 37 | 20 | 080 | 28 | 28.45 | | | M | AA | | 30.00 |
| 27 | 1235 | 0 | CLR | 10.00 | | 81 | 27.0 | 64 | 17.5 | 52 | 11.0 | 37 | 17 | 100 | 23 | 28.43 | | | M | AA | | 29.98 |
| 27 | 1255 | 0 | CLR | 10.00 | | 82 | 28.0 | 64 | 17.7 | 52 | 11.0 | 35 | 14 | 080 | 22 | 28.42 | | | M | AA | | 29.97 |
| 27 | 1315 | 0 | CLR | 10.00 | | 84 | 29.0 | 65 | 18.1 | 52 | 11.0 | 33 | 20 | 060 | 24 | 28.41 | | | M | AA | | 29.96 |
| 27 | 1335 | 0 | CLR | 10.00 | | 84 | 29.0 | 65 | 18.1 | 52 | 11.0 | 33 | 22 | 070 | 25 | 28.40 | | | M | AA | | 29.95 |
| 27 | 1355 | 0 | CLR | 10.00 | | 84 | 29.0 | 65 | 18.0 | 52 | 11.0 | 33 | 17 | 050 | 23 | 28.39 | | | M | AA | | 29.94 |
| 27 | 1415 | 0 | CLR | 10.00 | | 84 | 29.0 | 65 | 18.0 | 52 | 11.0 | 33 | 18 | 060 | 23 | 28.39 | | | M | AA | | 29.94 |
| 27 | 1435 | 0 | CLR | 10.00 | | 88 | 31.0 | 66 | 18.8 | 52 | 11.0 | 29 | 11 | 050 | 22 | 28.38 | | | M | AA | | 29.93 |
| 27 | 1455 | 0 | CLR | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 14 | 080 | 21 | 28.37 | | | M | AA | | 29.92 |
| 27 | 1515 | 0 | CLR | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 11 | 070 | 21 | 28.37 | | | M | AA | | 29.92 |
| 27 | 1535 | 0 | CLR | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 15 | 070 | 21 | 28.36 | | | M | AA | | 29.91 |
| 27 | 1555 | 0 | CLR | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 16 | 060 | 20 | 28.36 | | | M | AA | | 29.91 |
| 27 | 1615 | 0 | CLR | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 13 | 070 | 18 | 28.35 | | | M | AA | | 29.90 |
| 27 | 1635 | 0 | CLR | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 11 | 050 | | 28.35 | | | M | AA | | 29.90 |
| 27 | 1655 | 0 | CLR | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 10 | 040 | 18 | 28.35 | | | M | AA | | 29.90 |
| 27 | 1715 | 0 | CLR | 10.00 | | 88 | 31.0 | 66 | 18.8 | 52 | 11.0 | 29 | 11 | 060 | | 28.35 | | | M | AA | | 29.90 |
| 27 | 1735 | 0 | FEW020 SCT080 | 7.00 | | 84 | 29.0 | 65 | 18.0 | 52 | 11.0 | 33 | 22 | 170 | 25 | 28.39 | | | M | AA | | 29.94 |
| 27 | 1755 | 0 | SCT004 BKN020 OVC080 | 2.00 | TS | 77 | 25.0 | 62 | 16.7 | 52 | 11.0 | 42 | 25 | 170 | 41 | 28.38 | | | M | AA | | 29.93 |
| 27 | 1815 | 0 | BKN080 BKN085 BKN110 | 10.00 | TS | 75 | 24.0 | 61 | 16.3 | 52 | 11.0 | 45 | 14 | 210 | | 28.39 | | | M | AA | | 29.94 |
| 27 | 1835 | 0 | FEW080 BKN110 | 10.00 | TS | 75 | 24.0 | 61 | 16.3 | 52 | 11.0 | 45 | 13 | 260 | | 28.38 | | | M | AA | | 29.93 |
| 27 | 1855 | 0 | BKN120 | 10.00 | | 75 | 24.0 | 61 | 16.3 | 52 | 11.0 | 45 | 10 | 260 | | 28.38 | | | M | AA | | 29.93 |
| 27 | 1915 | 0 | FEW120 | 10.00 | | 75 | 24.0 | 61 | 16.3 | 52 | 11.0 | 45 | 6 | 260 | | 28.38 | | | M | AA | | 29.93 |
| 27 | 1935 | 0 | CLR | 10.00 | | 75 | 24.0 | 60 | 15.8 | 50 | 10.0 | 42 | 0 | 000 | | 28.37 | | | M | AA | | 29.92 |
| 27 | 1955 | 0 | FEW110 | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 8 | 220 | 17 | 28.39 | | | M | AA | | 29.94 |
| 27 | 2015 | 0 | FEW110 | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 5 | 260 | | 28.39 | | | M | AA | | 29.94 |
| 27 | 2035 | 0 | CLR | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 0 | 000 | | 28.39 | | | M | AA | | 29.94 |
| 27 | 2055 | 0 | CLR | 10.00 | | 75 | 24.0 | 62 | 16.9 | 54 | 12.0 | 48 | 7 | 040 | </ | | | | | | | |

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
CASA GRANDE MUNICIPAL ARPT (03914)
CASA GRANDE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1462 ft. above sea level

Latitude: 32.95

Longitude: -111.766

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti-meter (in. hg) |
|------|------------|--------------|----------------|-----------------|--------------|---------------|------|---------------|------|----------------|------|------------|------------------|----------|------------------|---------------------------|------------|-------------------|-----------------------------|-------------|--------------------|---------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0015 | 0 | CLR | 10.00 | | 70 | 21.0 | 59 | 14.7 | 50 | 10.0 | 49 | 0 | 000 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0035 | 0 | CLR | 10.00 | | 66 | 19.0 | 56 | 13.3 | 48 | 9.0 | 52 | 3 | 280 | | 28.39 | | M | AA | | 29.94 | |
| 28 | 0055 | 0 | CLR | 10.00 | | 66 | 19.0 | 57 | 13.8 | 50 | 10.0 | 57 | 5 | 290 | | 28.39 | | M | AA | | 29.94 | |
| 28 | 0115 | 0 | CLR | 10.00 | | 66 | 19.0 | 57 | 13.8 | 50 | 10.0 | 57 | 5 | 310 | | 28.39 | | M | AA | | 29.94 | |
| 28 | 0135 | 0 | FEW110 | 10.00 | | 68 | 20.0 | 59 | 14.8 | 52 | 11.0 | 57 | 0 | 000 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0155 | 0 | SCT120 | 10.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 0 | 000 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0215 | 0 | SCT110 | 10.00 | | 68 | 20.0 | 60 | 15.4 | 54 | 12.0 | 61 | 0 | 000 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0235 | 0 | BKN110 | 10.00 | | 68 | 20.0 | 60 | 15.4 | 54 | 12.0 | 61 | 0 | 000 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 0255 | 0 | FEW120 | 10.00 | | 70 | 21.0 | 61 | 16.1 | 55 | 13.0 | 59 | 3 | 080 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 0315 | 0 | FEW120 | 10.00 | | 66 | 19.0 | 58 | 14.4 | 52 | 11.0 | 61 | 5 | 050 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0335 | 0 | SCT120 | 10.00 | | 66 | 19.0 | 58 | 14.4 | 52 | 11.0 | 61 | 3 | 020 | | 28.39 | | M | AA | | 29.94 | |
| 28 | 0355 | 0 | FEW120 | 10.00 | | 66 | 19.0 | 59 | 15.0 | 54 | 12.0 | 65 | 6 | 350 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0415 | 0 | CLR | 10.00 | | 66 | 19.0 | 58 | 14.4 | 52 | 11.0 | 61 | 7 | 040 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0435 | 0 | CLR | 10.00 | | 66 | 19.0 | 58 | 14.4 | 52 | 11.0 | 61 | 7 | 060 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0455 | 0 | FEW095 | 10.00 | | 68 | 20.0 | 60 | 15.4 | 54 | 12.0 | 61 | 7 | 050 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 0515 | 0 | FEW095 | 10.00 | | 66 | 19.0 | 59 | 15.0 | 54 | 12.0 | 65 | 6 | 060 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 0535 | 0 | FEW095 | 10.00 | | 66 | 19.0 | 59 | 15.0 | 54 | 12.0 | 65 | 5 | 030 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 0555 | 0 | CLR | 10.00 | | 70 | 21.0 | 61 | 15.8 | 54 | 12.0 | 57 | 7 | 050 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 0615 | 0 | CLR | 10.00 | | 70 | 21.0 | 61 | 15.8 | 54 | 12.0 | 57 | 7 | 070 | | 28.42 | | M | AA | | 29.97 | |
| 28 | 0635 | 0 | SCT095 | 10.00 | | 70 | 21.0 | 61 | 16.1 | 55 | 13.0 | 59 | 7 | 070 | | 28.42 | | M | AA | | 29.97 | |
| 28 | 0655 | 0 | FEW095 | 10.00 | | 72 | 22.0 | 62 | 16.5 | 55 | 13.0 | 55 | 5 | 100 | | 28.43 | | M | AA | | 29.98 | |
| 28 | 0715 | 0 | CLR | 10.00 | | 73 | 23.0 | 62 | 16.7 | 55 | 13.0 | 53 | 7 | 070 | | 28.43 | | M | AA | | 29.98 | |
| 28 | 0735 | 0 | CLR | 10.00 | | 73 | 23.0 | 62 | 16.7 | 55 | 13.0 | 53 | 7 | 090 | | 28.44 | | M | AA | | 29.99 | |
| 28 | 0755 | 0 | CLR | 10.00 | | 75 | 24.0 | 63 | 17.1 | 55 | 13.0 | 50 | 6 | 090 | | 28.45 | | M | AA | | 30.00 | |
| 28 | 0815 | 0 | CLR | 10.00 | | 77 | 25.0 | 64 | 17.5 | 55 | 13.0 | 47 | 8 | 100 | | 28.45 | | M | AA | | 30.00 | |
| 28 | 0835 | 0 | FEW120 | 10.00 | | 77 | 25.0 | 64 | 17.5 | 55 | 13.0 | 47 | 8 | 090 | | 28.45 | | M | AA | | 30.00 | |
| 28 | 0855 | 0 | SCT120 | 10.00 | | 79 | 26.0 | 64 | 17.9 | 55 | 13.0 | 44 | 8 | 100 | | 28.46 | | M | AA | | 30.01 | |
| 28 | 0915 | 0 | SCT120 | 10.00 | | 81 | 27.0 | 66 | 18.9 | 57 | 14.0 | 44 | 8 | 100 | | 28.46 | | M | AA | | 30.01 | |
| 28 | 0935 | 0 | FEW120 | 10.00 | | 81 | 27.0 | 66 | 18.9 | 57 | 14.0 | 44 | 7 | 080 | | 28.46 | | M | AA | | 30.01 | |
| 28 | 0955 | 0 | FEW110 | 10.00 | | 82 | 28.0 | 65 | 18.5 | 55 | 13.0 | 40 | 7 | 090 | | 28.46 | | M | AA | | 30.01 | |
| 28 | 1015 | 0 | FEW110 | 10.00 | | 84 | 29.0 | 66 | 18.8 | 55 | 13.0 | 37 | 8 | 120 | | 28.46 | | M | AA | | 30.01 | |
| 28 | 1035 | 0 | FEW110 | 10.00 | | 86 | 30.0 | 67 | 19.2 | 55 | 13.0 | 35 | 8 | 120 | | 28.46 | | M | AA | | 30.01 | |
| 28 | 1055 | 0 | CLR | 10.00 | | 88 | 31.0 | 67 | 19.6 | 55 | 13.0 | 33 | 7 | 100 | | 28.45 | | M | AA | | 30.00 | |
| 28 | 1115 | 0 | CLR | 10.00 | | 90 | 32.0 | 68 | 19.9 | 55 | 13.0 | 31 | 9 | 100 | | 28.45 | | M | AA | | 30.00 | |
| 28 | 1135 | 0 | CLR | 10.00 | | 90 | 32.0 | 68 | 19.9 | 55 | 13.0 | 31 | 9 | 120 | | 28.44 | | M | AA | | 29.99 | |
| 28 | 1155 | 0 | CLR | 10.00 | | 90 | 32.0 | 68 | 19.9 | 55 | 13.0 | 31 | 8 | 110 | | 28.44 | | M | AA | | 29.99 | |
| 28 | 1215 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 0 | 000 | | 28.44 | | M | AA | | 29.99 | |
| 28 | 1235 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 6 | 170 | | 28.43 | | M | AA | | 29.98 | |
| 28 | 1255 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 6 | 100 | | 28.42 | | M | AA | | 29.97 | |
| 28 | 1315 | 0 | CLR | 10.00 | | 90 | 32.0 | 67 | 19.6 | 54 | 12.0 | 29 | 6 | 090 | | 28.42 | | M | AA | | 29.97 | |
| 28 | 1335 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 5 | 260 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 1355 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 8 | 210 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 1415 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 5 | 220 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 1435 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 6 | 140 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 1455 | 0 | CLR | 10.00 | | 93 | 34.0 | 69 | 20.4 | 55 | 13.0 | 28 | 6 | 140 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 1515 | 0 | CLR | 10.00 | | 93 | 34.0 | 69 | 20.4 | 55 | 13.0 | 28 | 8 | 140 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 1535 | 0 | CLR | 10.00 | | 93 | 34.0 | 69 | 20.4 | 55 | 13.0 | 28 | 9 | 220 | | 28.39 | | M | AA | | 29.94 | |
| 28 | 1555 | 0 | CLR | 10.00 | | 93 | 34.0 | 69 | 20.4 | 55 | 13.0 | 28 | 7 | 130 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 1615 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 10 | 190 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 1635 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 11 | 180 | | 28.40 | | M | AA | | 29.95 | |
| 28 | 1655 | 0 | CLR | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 14 | 160 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 1715 | 0 | CLR | 10.00 | | 90 | 32.0 | 67 | 19.6 | 54 | 12.0 | 29 | 17 | 120 | 23 | 28.41 | | M | AA | | 29.96 | |
| 28 | 1735 | 0 | CLR | 10.00 | | 88 | 31.0 | 67 | 19.5 | 55 | 13.0 | 33 | 16 | 130 | | 28.41 | | M | AA | | 29.96 | |
| 28 | 1755 | 0 | CLR | 10.00 | | 88 | 31.0 | 67 | 19.5 | 55 | 13.0 | 33 | 11 | 120 | 20 | 28.41 | | M | AA | | 29.96 | |
| 28 | 1815 | 0 | FEW120 | 10.00 | | 86 | 30.0 | 67 | 19.2 | 55 | 13.0 | 35 | 16 | 110 | | 28.42 | | M | AA | | 29.97 | |
| 28 | 1835 | 0 | FEW120 | 10.00 | | 84 | 29.0 | 66 | 18.8 | 55 | 13.0 | 37 | 13 | 110 | | 28.42 | | M | AA | | 29.97 | |
| 28 | 1855 | 0 | CLR | 10.00 | | 84 | 29.0 | 66 | 18.6 | 54 | 12.0 | 36 | 14 | 110 | | 28.42 | | M | AA | | 29.97 | |
| 28 | 1915 | 0 | CLR | 10.00 | | 84 | 29.0 | 66 | 18.8 | 55 | 13.0 | 37 | 10 | 110 | | 28.43 | | M | AA | | 29.98 | |
| 28 | 1935 | 0 | CLR | 10.00 | | 82 | 28.0 | 65 | 18.5 | 55 | 13.0 | 40 | 11 | 100 | | 28.43 | | M | AA | | 29.98 | |
| 28 | 1955 | 0 | CLR | 10.00 | | 82 | 28.0 | 66 | 19.0 | 57 | 14.0 | 43 | 10 | 090 | 22 | 28.44 | | M | AA | | 29.99 | |
| 28 | 2015 | 0 | CLR | 10.00 | | 82 | 28.0 | 66 | 19.0 | 57 | 14.0 | 43 | 9 | 100 | | 28.44 | | M | AA | | 29.99 | |
| 28 | 2035 | 0 | CLR | 10.00 | | 82 | 28.0 | 66 | 19.0 | 57 | 14.0 | 43 | 13 | 100 | | 28.45 | | M | AA | | 30.00 | |
| 28 | 2055 | 0 | CLR | 10.00 | | 81 | 27.0 | 66 | 18.9 | 57 | 14.0 | 44 | 9 | 100 | | 28.45 | | M | AA | | 30.00 | |
| 28 | 2115 | 0 | CLR | 10.00 | | 81 | 27.0 | 67 | 19.4 | 59 | 15.0 | 47 | 8 | 100 | | 28.45 | | M | AA | | 30.00 | |
| 28 | 2135 | 0 | CLR | 10. | | | | | | | | | | | | | | | | | | |

2/14/2017

QUALITY CONTROLLED Local Climatological Data: CASA GRANDE MUNICIPAL ARPT

| | | | | | | | | | | | | | | | | | | | | | | |
|----|------|---|-----|-------|--|----|------|----|------|----|------|----|---|-----|--|-------|--|--|---|----|--|-------|
| 28 | 2335 | 0 | CLR | 10.00 | | 81 | 27.0 | 67 | 19.4 | 59 | 15.0 | 47 | 6 | 090 | | 28.47 | | | M | AA | | 30.02 |
| 28 | 2355 | 0 | CLR | 10.00 | | 81 | 27.0 | 66 | 18.9 | 57 | 14.0 | 44 | 0 | 000 | | 28.48 | | | M | AA | | 30.03 |

Dynamically generated Tue Feb 14 18:43:15 EST 2017 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
CHANDLER MUNICIPAL AIRPORT (53128)
CHANDLER, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1243 ft. above sea level

Latitude: 33.268

Longitude: -111.812

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0547 | 0 | CLRs | 10.00 | | 70 | 21.0 | 58 | 14.2 | 48 | 9.0 | 46 | 10 | 100 | | 28.69 | | | M | AA | | 30.01 |
| 27 | 0647 | 0 | BKN120 | 20.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 38 | 090 | 49 | 28.71 | | | M | AA | | 30.04 |
| 27 | 0747 | 0 | BKN120 | 20.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 20 | 060 | | 28.69 | | | M | AA | | 30.02 |
| 27 | 0847 | 0 | BKN120 | 10.00 | | 75 | 24.0 | 60 | 15.3 | 48 | 9.0 | 39 | 21 | 070 | | 28.71 | | | M | AA | | 30.03 |
| 27 | 0947 | 0 | BKN120 | 10.00 | | 77 | 25.0 | 61 | 16.2 | 50 | 10.0 | 39 | 14 | 090 | | 28.71 | | | M | AA | | 30.04 |
| 27 | 1047 | 0 | BKN120 | 6.00 | | 77 | 25.0 | 61 | 16.2 | 50 | 10.0 | 39 | 28 | 060 | 34 | 28.69 | | | M | AA | | 30.01 |
| 27 | 1147 | 0 | CLRs | 10.00 | | 79 | 26.0 | 63 | 17.1 | 52 | 11.0 | 39 | 14 | 120 | | 28.68 | | | M | AA | | 30.00 |
| 27 | 1247 | 0 | CLRs | 10.00 | | 79 | 26.0 | 63 | 17.1 | 52 | 11.0 | 39 | 9 | 100 | | 28.65 | | | M | AA | | 29.97 |
| 27 | 1347 | 0 | SCT090 | 10.00 | | 84 | 29.0 | 65 | 18.1 | 52 | 11.0 | 33 | 8 | 060 | | 28.61 | | | M | AA | | 29.93 |
| 27 | 1447 | 0 | SCT100 | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 14 | 090 | | 28.59 | | | M | AA | | 29.91 |
| 27 | 1547 | 0 | FEW070 FEW150 BKN250 | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 10 | 090 | | 28.57 | | | M | AA | | 29.89 |
| 27 | 1647 | 0 | FEW070 FEW150 SCT250 | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 9 | 120 | | 28.56 | | | M | AA | | 29.88 |
| 27 | 1747 | 0 | FEW070 FEW150 SCT250 | 10.00 | | 86 | 30.0 | 65 | 18.4 | 52 | 11.0 | 31 | 11 | 110 | | 28.56 | | | M | AA | | 29.88 |
| 27 | 1847 | 0 | BKN050 BKN220 | 10.00 | VCTS | 81 | 27.0 | 65 | 18.0 | 54 | 12.0 | 39 | 17 | 190 | | 28.58 | | | M | AA | | 29.90 |
| 27 | 1947 | 0 | BKN120 | 10.00 | | 81 | 27.0 | 63 | 17.0 | 50 | 10.0 | 34 | 10 | 170 | | 28.59 | | | M | AA | | 29.91 |
| 27 | 2047 | 0 | SCT070 BKN120 | 10.00 | | 79 | 26.0 | 62 | 16.6 | 50 | 10.0 | 36 | 8 | 230 | | 28.59 | | | M | AA | | 29.91 |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
CHANDLER MUNICIPAL AIRPORT (53128)
CHANDLER, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1243 ft. above sea level

Latitude: 33.268

Longitude: -111.812

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti-meter (in. hg) |
|------|------------|--------------|----------------|-----------------|--------------|---------------|------|---------------|------|----------------|------|------------|------------------|----------|------------------|---------------------------|------------|-------------------|-----------------------------|-------------|--------------------|---------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0647 | 0 | BKN090 BKN200 | 30.00 | | 72 | 22.0 | 63 | 17.1 | 57 | 14.0 | 59 | 6 | 050 | | 28.64 | | M | AA | | 29.96 | |
| 28 | 0747 | 0 | BKN100 BKN250 | 20.00 | | 75 | 24.0 | 65 | 18.3 | 59 | 15.0 | 58 | 6 | 050 | | | 28.66 | | M | AA | | 29.98 |
| 28 | 0847 | 0 | BKN100 BKN250 | 20.00 | | 79 | 26.0 | 65 | 18.5 | 57 | 14.0 | 47 | 6 | 050 | | | 28.67 | | M | AA | | 29.99 |
| 28 | 0947 | 0 | BKN100 BKN250 | 20.00 | | 84 | 29.0 | 67 | 19.4 | 57 | 14.0 | 40 | 7 | 090 | | | 28.67 | | M | AA | | 29.99 |
| 28 | 1047 | 0 | BKN100 BKN250 | 20.00 | | 88 | 31.0 | 67 | 19.6 | 55 | 13.0 | 33 | 10 | 090 | | | 28.66 | | M | AA | | 29.98 |
| 28 | 1147 | 0 | FEW100 BKN250 | 10.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 7 | 090 | | | 28.64 | | M | AA | | 29.96 |
| 28 | 1247 | 0 | BKN250 | 10.00 | | 93 | 34.0 | 69 | 20.4 | 55 | 13.0 | 28 | 8 | 180 | | | 28.62 | | M | AA | | 29.94 |
| 28 | 1347 | 0 | BKN250 | 10.00 | | 95 | 35.0 | 69 | 20.5 | 54 | 12.0 | 25 | 16 | 180 | | | 28.60 | | M | AA | | 29.92 |
| 28 | 1447 | 0 | BKN090 | 10.00 | | 93 | 34.0 | 68 | 20.2 | 54 | 12.0 | 27 | 14 | 170 | | | 28.60 | | M | AA | | 29.92 |
| 28 | 1547 | 0 | BKN090 | 10.00 | | 95 | 35.0 | 69 | 20.5 | 54 | 12.0 | 25 | 11 | 160 | | | 28.59 | | M | AA | | 29.91 |
| 28 | 1647 | 0 | BKN090 | 10.00 | | 95 | 35.0 | 69 | 20.5 | 54 | 12.0 | 25 | 14 | 170 | | | 28.59 | | M | AA | | 29.91 |
| 28 | 1747 | 0 | BKN090 | 10.00 | | 90 | 32.0 | 67 | 19.7 | 54 | 12.0 | 29 | 23 | 150 | | | 28.60 | | M | AA | | 29.92 |
| 28 | 1847 | 0 | BKN110 | 10.00 | | 88 | 31.0 | 67 | 19.6 | 55 | 13.0 | 33 | 10 | 090 | | | 28.62 | | M | AA | | 29.94 |
| 28 | 1947 | 0 | BKN110 | 10.00 | | 84 | 29.0 | 68 | 20.0 | 59 | 15.0 | 43 | 21 | 100 | | | 28.64 | | M | AA | | 29.96 |
| 28 | 2047 | 0 | BKN110 | 10.00 | | 82 | 28.0 | 68 | 20.2 | 61 | 16.0 | 49 | 9 | 080 | | | 28.64 | | M | AA | | 29.96 |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
PHOENIX DEER VALLEY ARPT (03184)
PHOENIX, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1455 ft. above sea level

Latitude: 33.688

Longitude: -112.081

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|-------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|-----|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0053 | 12 | SCT110 | 10.00 | | 75 | 23.9 | 60 | 15.5 | 49 | 9.4 | 40 | 5 | VR | | 28.44 | | | 29.93 | AA | | 30.01 |
| 27 | 0153 | 12 | CLR | 10.00 | | 75 | 23.9 | 59 | 15.0 | 47 | 8.3 | 37 | 7 | 090 | | 28.42 | | | 29.93 | AA | | 29.99 |
| 27 | 0253 | 12 | CLR | 10.00 | | 75 | 23.9 | 59 | 14.8 | 46 | 7.8 | 36 | 7 | 100 | | 28.42 | | | 29.92 | AA | | 29.99 |
| 27 | 0353 | 12 | CLR | 10.00 | | 74 | 23.3 | 58 | 14.6 | 46 | 7.8 | 37 | 7 | 080 | | 28.41 | | | 29.91 | AA | | 29.98 |
| 27 | 0453 | 12 | CLR | 10.00 | | 74 | 23.3 | 58 | 14.6 | 46 | 7.8 | 37 | 6 | 110 | | 28.42 | | | 29.92 | AA | | 29.99 |
| 27 | 0553 | 12 | CLR | 10.00 | | 74 | 23.3 | 59 | 14.8 | 47 | 8.3 | 38 | 10 | 090 | | 28.42 | | | 29.93 | AA | | 29.99 |
| 27 | 0653 | 12 | CLR | 10.00 | | 73 | 22.8 | 58 | 14.6 | 47 | 8.3 | 40 | 9 | 130 | | 28.45 | | | 29.96 | AA | | 30.02 |
| 27 | 0753 | 12 | CLR | 10.00 | | 74 | 23.3 | 59 | 14.8 | 47 | 8.3 | 38 | 11 | 120 | | 28.47 | | | 29.98 | AA | | 30.04 |
| 27 | 0853 | 12 | CLR | 10.00 | | 79 | 26.1 | 61 | 15.9 | 47 | 8.3 | 32 | 13 | 050 | 22 | 28.45 | | | 29.96 | AA | | 30.02 |
| 27 | 0953 | 12 | SCT100 | 10.00 | | 81 | 27.2 | 61 | 16.0 | 46 | 7.8 | 29 | 11 | 140 | | 28.46 | | | 29.96 | AA | | 30.03 |
| 27 | 1053 | 12 | FEW090 BKN110 | 10.00 | | 78 | 25.6 | 61 | 15.9 | 48 | 8.9 | 35 | 14 | 150 | 23 | 28.46 | | | 29.97 | AA | | 30.03 |
| 27 | 1153 | 12 | SCT090 BKN110 | 10.00 | | 80 | 26.7 | 61 | 16.1 | 47 | 8.3 | 31 | 20 | 050 | 28 | 28.41 | | | 29.92 | AA | T | 29.98 |
| 27 | 1253 | 12 | CLR | 10.00 | | 80 | 26.7 | 62 | 16.5 | 49 | 9.4 | 34 | 11 | 080 | | 28.40 | | | 29.90 | AA | T | 29.97 |
| 27 | 1353 | 12 | CLR | 10.00 | | 83 | 28.3 | 63 | 17.1 | 49 | 9.4 | 31 | 11 | 110 | 17 | 28.38 | | | 29.87 | AA | | 29.94 |
| 27 | 1453 | 12 | CLR | 10.00 | | 84 | 28.9 | 63 | 17.1 | 48 | 8.9 | 29 | 9 | 110 | | 28.36 | | | 29.85 | AA | | 29.92 |
| 27 | 1553 | 12 | CLR | 10.00 | | 85 | 29.4 | 63 | 17.0 | 47 | 8.3 | 27 | 8 | 090 | 16 | 28.34 | | | 29.84 | AA | | 29.90 |
| 27 | 1653 | 12 | CLR | 10.00 | | 86 | 30.0 | 63 | 17.2 | 47 | 8.3 | 26 | 8 | 090 | | 28.33 | | | 29.82 | AA | | 29.89 |
| 27 | 1753 | 12 | CLR | 10.00 | | 85 | 29.4 | 62 | 16.8 | 46 | 7.8 | 26 | 3 | 180 | | 28.33 | | | 29.82 | AA | | 29.89 |
| 27 | 1853 | 12 | CLR | 10.00 | | 84 | 28.9 | 62 | 16.4 | 45 | 7.2 | 26 | 7 | 200 | | 28.34 | | | 29.83 | AA | | 29.90 |
| 27 | 1953 | 12 | FEW014 | 5.00 | BLDU | 81 | 27.2 | 62 | 16.7 | 49 | 9.4 | 33 | 11 | 190 | | 28.35 | | | 29.85 | AA | | 29.91 |
| 27 | 2006 | 12 | CLR | 5.00 | HZ | 80 | 26.7 | 62 | 16.5 | 49 | 9.4 | 34 | 7 | 200 | | 28.35 | | M | | SP | | 29.91 |
| 27 | 2053 | 12 | CLR | 5.00 | HZ | 79 | 26.1 | 61 | 16.3 | 49 | 9.4 | 35 | 0 | 000 | | 28.37 | | | 29.86 | AA | | 29.93 |
| 27 | 2100 | 12 | BKN021 | 3.00 | HZ | 79 | 26.1 | 61 | 16.3 | 49 | 9.4 | 35 | 0 | 000 | | 28.38 | | M | | SP | | 29.94 |
| 27 | 2117 | 12 | OVC011 | 4.00 | HZ | 78 | 25.6 | 61 | 16.1 | 49 | 9.4 | 36 | 5 | 050 | | 28.37 | | M | | SP | | 29.93 |
| 27 | 2131 | 12 | OVC009 | 4.00 | HZ | 78 | 25.6 | 61 | 16.1 | 49 | 9.4 | 36 | 0 | 000 | | 28.37 | | M | | SP | | 29.93 |
| 27 | 2151 | 12 | OVC010 | 3.00 | HZ | 79 | 26.0 | 61 | 16.1 | 48 | 9.0 | 34 | 6 | 030 | | 28.37 | | M | | SP | | 29.93 |
| 27 | 2153 | 12 | OVC010 | 3.00 | HZ | 78 | 25.6 | 61 | 16.1 | 49 | 9.4 | 36 | 5 | 030 | | 28.37 | | | 29.87 | AA | | 29.93 |
| 27 | 2221 | 12 | OVC011 | 2.50 | HZ | 78 | 25.6 | 61 | 16.1 | 49 | 9.4 | 36 | 7 | 040 | | 28.37 | | M | | SP | | 29.93 |
| 27 | 2249 | 12 | OVC009 | 3.00 | HZ | 77 | 25.0 | 60 | 15.7 | 48 | 9.0 | 36 | 7 | 030 | | 28.37 | | M | | SP | | 29.93 |
| 27 | 2253 | 12 | OVC009 | 3.00 | HZ | 77 | 25.0 | 61 | 15.9 | 49 | 9.4 | 37 | 6 | 020 | | 28.38 | | | 29.87 | AA | | 29.94 |
| 27 | 2308 | 12 | BKN010 | 3.00 | HZ | 78 | 25.6 | 61 | 16.1 | 49 | 9.4 | 36 | 5 | 030 | | 28.38 | | M | | SP | | 29.94 |
| 27 | 2323 | 12 | SCT012 | 3.00 | HZ | 77 | 25.0 | 61 | 15.9 | 49 | 9.4 | 37 | 6 | 030 | | 28.38 | | M | | SP | | 29.94 |
| 27 | 2353 | 12 | SCT015 | 5.00 | HZ | 77 | 25.0 | 60 | 15.7 | 48 | 8.9 | 36 | 8 | 020 | | 28.37 | | | 29.87 | AA | | 29.93 |

Dynamically generated Tue Feb 14 18:53:32 EST 2017 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
PHOENIX DEER VALLEY ARPT (03184)
PHOENIX, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1455 ft. above sea level

Latitude: 33.688

Longitude: -112.081

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0005 | 12 | BKN015 | 5.00 | HZ | 77 | 25.0 | 60 | 15.7 | 48 | 8.9 | 36 | 8 | 020 | | 28.37 | | | M | SP | | 29.93 |
| 28 | 0016 | 12 | BKN013 | 6.00 | HZ | 77 | 25.0 | 60 | 15.7 | 48 | 8.9 | 36 | 8 | 030 | | 28.37 | | | M | SP | | 29.93 |
| 28 | 0033 | 12 | SCT011 | 6.00 | HZ | 77 | 25.0 | 60 | 15.7 | 48 | 8.9 | 36 | 7 | 030 | | 28.37 | | | M | SP | | 29.93 |
| 28 | 0053 | 12 | FEW011 | 6.00 | HZ | 76 | 24.4 | 60 | 15.7 | 49 | 9.4 | 39 | 7 | 040 | | 28.37 | | | | 29.86 | AA | 29.93 |
| 28 | 0153 | 12 | CLR | 10.00 | | 77 | 25.0 | 61 | 15.9 | 49 | 9.4 | 37 | 7 | 050 | | 28.36 | | | | 29.85 | AA | 29.92 |
| 28 | 0253 | 12 | CLR | 10.00 | | 75 | 23.9 | 60 | 15.5 | 49 | 9.4 | 40 | 8 | 080 | | 28.36 | | | | 29.85 | AA | 29.92 |
| 28 | 0353 | 12 | BKN100 | 10.00 | | 77 | 25.0 | 61 | 16.2 | 50 | 10.0 | 39 | 6 | 080 | | 28.37 | | | | 29.86 | AA | 29.93 |
| 28 | 0453 | 12 | FEW095 BKN110 | 10.00 | | 76 | 24.4 | 61 | 16.0 | 50 | 10.0 | 40 | 5 | 080 | | 28.37 | | | | 29.86 | AA | 29.93 |
| 28 | 0511 | 12 | FEW110 | 10.00 | VCTS | 75 | 23.9 | 60 | 15.8 | 50 | 10.0 | 42 | 3 | 110 | | 28.38 | | | M | SP | | 29.94 |
| 28 | 0532 | 12 | BKN085 | 10.00 | | 76 | 24.4 | 61 | 16.2 | 51 | 10.6 | 42 | 5 | 050 | | 28.38 | | | M | SP | | 29.94 |
| 28 | 0553 | 12 | OVC085 | 10.00 | | 74 | 23.3 | 61 | 16.1 | 52 | 11.1 | 46 | 6 | 100 | | 28.38 | | | | 29.88 | AA | 29.95 |
| 28 | 0653 | 12 | CLR | 10.00 | | 75 | 23.9 | 62 | 16.6 | 53 | 11.7 | 46 | 8 | 040 | | 28.40 | | | | 29.91 | AA | 29.97 |
| 28 | 0753 | 12 | FEW100 | 10.00 | | 79 | 26.1 | 64 | 17.6 | 54 | 12.2 | 42 | 7 | 040 | | 28.41 | | | | 29.91 | AA | 29.98 |
| 28 | 0853 | 12 | CLR | 10.00 | | 83 | 28.3 | 65 | 18.1 | 53 | 11.7 | 36 | 10 | 050 | | 28.42 | | | | 29.92 | AA | 29.99 |
| 28 | 0953 | 12 | SCT085 BKN110 | 10.00 | | 85 | 29.4 | 65 | 18.5 | 53 | 11.7 | 33 | 10 | 100 | | 28.42 | | | | 29.93 | AA | 29.99 |
| 28 | 1053 | 12 | FEW110 | 10.00 | | 89 | 31.7 | 67 | 19.2 | 53 | 11.7 | 29 | 9 | 150 | | 28.41 | | | | 29.91 | AA | 29.98 |
| 28 | 1153 | 12 | BKN110 | 10.00 | | 89 | 31.7 | 67 | 19.2 | 53 | 11.7 | 29 | 10 | 130 | | 28.40 | | | | 29.90 | AA | 29.97 |
| 28 | 1253 | 12 | FEW050 FEW080 BKN110 | 10.00 | | 89 | 31.7 | 67 | 19.2 | 53 | 11.7 | 29 | 9 | 150 | | 28.38 | | | | 29.88 | AA | 29.95 |
| 28 | 1353 | 12 | FEW120 | 10.00 | | 92 | 33.3 | 68 | 19.7 | 53 | 11.7 | 27 | 8 | 140 | | 28.37 | | | | 29.85 | AA | 29.93 |
| 28 | 1453 | 12 | SCT110 | 10.00 | | 93 | 33.9 | 68 | 19.9 | 53 | 11.7 | 26 | 9 | 120 | | 28.36 | | | | 29.85 | AA | 29.92 |
| 28 | 1553 | 12 | FEW120 | 10.00 | | 93 | 33.9 | 67 | 19.6 | 52 | 11.1 | 25 | 11 | 180 | | 28.35 | | | | 29.83 | AA | 29.91 |
| 28 | 1653 | 12 | CLR | 10.00 | | 93 | 33.9 | 67 | 19.6 | 52 | 11.1 | 25 | 13 | 200 | | 28.35 | | | | 29.83 | AA | 29.91 |
| 28 | 1753 | 12 | SCT120 | 10.00 | | 92 | 33.3 | 68 | 19.7 | 53 | 11.7 | 27 | 9 | 170 | | 28.35 | | | | 29.84 | AA | 29.91 |
| 28 | 1853 | 12 | FEW100 SCT120 | 10.00 | | 88 | 31.1 | 67 | 19.5 | 55 | 12.8 | 33 | 16 | 120 | 25 | 28.37 | | | | 29.86 | AA | 29.93 |
| 28 | 1953 | 12 | BKN120 | 10.00 | -RA | 86 | 30.0 | 67 | 19.2 | 55 | 12.8 | 35 | 16 | 130 | 26 | 28.38 | | | | 29.87 | AA | 29.94 |
| 28 | 2053 | 12 | BKN085 OVC110 | 10.00 | | 82 | 27.8 | 67 | 19.6 | 59 | 15.0 | 46 | 10 | 340 | | 28.42 | | | | 29.92 | AA | 29.99 |
| 28 | 2153 | 12 | CLR | 10.00 | | 80 | 26.7 | 67 | 19.3 | 59 | 15.0 | 49 | 10 | 020 | | 28.43 | | | | 29.93 | AA | 30.00 |
| 28 | 2253 | 12 | CLR | 10.00 | | 81 | 27.2 | 67 | 19.1 | 58 | 14.4 | 46 | 8 | 020 | | 28.43 | | | | 29.93 | AA | 30.00 |
| 28 | 2353 | 12 | CLR | 10.00 | | 81 | 27.2 | 67 | 19.1 | 58 | 14.4 | 46 | 0 | 000 | | 28.44 | | | | 29.93 | AA | 30.01 |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA

(final)

HOURLY OBSERVATIONS TABLE FALCON FIELD AIRPORT (03185)

MESA, AZ

(09/2016)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1380 ft. above sea level

Latitude: 33.466

Longitude: -111.733

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|-------------------|--------------------|-----------------|---------------------|-----|---------------------|-----|----------------------|-----|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0550 | 0 | FEW150 SCT230 | 40.00 | | M | M | M | M | M | M | M | 5 | 340 | | 28.50 | | M | M | AA | | 29.98 |
| 27 | 0654 | 0 | FEW150 SCT230 | 40.00 | | M | M | M | M | M | M | M | 6 | 120 | | 28.54 | | M | M | AA | | 30.02 |
| 27 | 0747 | 0 | FEW150 SCT230 | 40.00 | | M | M | M | M | M | M | M | 10 | 040 | | 28.54 | | M | M | AA | | 30.02 |
| 27 | 0847 | 0 | SCT100 BKN200 | 40.00 | | M | M | M | M | M | M | M | 11 | 360 | 17 | 28.51 | | M | M | AA | | 29.99 |
| 27 | 0954 | 0 | SCT100 BKN200 | 40.00 | | M | M | M | M | M | M | M | 17 | 120 | | 28.55 | | M | M | AA | | 30.03 |
| 27 | 1047 | 0 | SCT100 BKN200 | 40.00 | | M | M | M | M | M | M | M | 17 | 010 | 23 | 28.52 | | M | M | AA | | 30.00 |
| 27 | 1157 | 0 | SCT100 BKN200 | 40.00 | | M | M | M | M | M | M | M | 17 | 010 | 23 | 28.48 | | M | M | AA | | 29.96 |
| 27 | 1347 | 0 | SCT100 BKN200 | 40.00 | | M | M | M | M | M | M | M | 6 | VR | | 28.44 | | M | M | AA | | 29.92 |
| 27 | 1447 | 0 | SCT100 BKN200 | 40.00 | | M | M | M | M | M | M | M | 16 | 360 | | 28.42 | | M | M | AA | | 29.90 |
| 27 | 1548 | 0 | SCT100 BKN200 | 40.00 | | M | M | M | M | M | M | M | 11 | 360 | | 28.39 | | M | M | AA | | 29.87 |
| 27 | 1651 | 0 | SCT100 BKN200 | 40.00 | | M | M | M | M | M | M | M | 11 | 360 | | 28.38 | | M | M | AA | | 29.86 |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
FALCON FIELD AIRPORT (03185)
MESA, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1380 ft. above sea level

Latitude: 33.466

Longitude: -111.733

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti-meter (in. hg) | |
|------|------------|--------------|----------------|-----------------|--------------|---------------|-----|---------------|-----|----------------|-----|------------|------------------|----------|------------------|---------------------------|------------|-------------------|-----------------------------|-------------|--------------------|---------------------|-------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | |
| 28 | 0947 | 0 | SCT120 BKN250 | 50.00 | | M | M | M | M | M | M | M | 11 | 010 | | 28.49 | | | M | AA | | 29.97 | |
| 28 | 1047 | 0 | SCT120 BKN250 | 50.00 | | M | M | M | M | M | M | M | 11 | 050 | | | 28.48 | | | M | | AA | 29.96 |
| 28 | 1147 | 0 | SCT120 BKN250 | 50.00 | | M | M | M | M | M | M | M | 11 | 130 | | 17 | 28.46 | | | M | | AA | 29.94 |
| 28 | 1247 | 0 | SCT120 BKN250 | 50.00 | | M | M | M | M | M | M | M | 17 | 150 | | 28.45 | | | M | AA | 29.93 | | |
| 28 | 1347 | 0 | SCT120 BKN250 | 40.00 | | M | M | M | M | M | M | M | 11 | 150 | | 28.42 | | | M | AA | 29.90 | | |
| 28 | 1447 | 0 | SCT120 BKN250 | 40.00 | | M | M | M | M | M | M | M | 11 | 130 | 23 | 28.42 | | | M | AA | 29.90 | | |
| 28 | 1728 | 0 | BKN070 | 20.00 | | M | M | M | M | M | M | M | 11 | 040 | | 28.42 | | | M | AA | 29.90 | | |
| 28 | 1754 | 0 | BKN070 | 20.00 | | M | M | M | M | M | M | M | 17 | 090 | | 28.43 | | | M | AA | 29.91 | | |
| 28 | 1847 | 0 | BKN070 | 20.00 | | M | M | M | M | M | M | M | 17 | 090 | 24 | 28.45 | | | M | AA | 29.93 | | |
| 28 | 1947 | 0 | BKN070 | 20.00 | | M | M | M | M | M | M | M | 17 | 080 | | 28.45 | | | M | AA | 29.93 | | |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
GLENDALE MUNICIPAL AIRPORT (53126)
GLENDALE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1066 ft. above sea level

Latitude: 33.527

Longitude: -112.295

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0547 | 0 | SCT120 BKN200 | 10.00 | | 72 | 22.0 | 60 | 15.7 | 52 | 11.0 | 50 | 0 | 000 | | 28.86 | | | M | AA | | 30.00 |
| 27 | 0650 | 0 | SCT120 BKN200 | 10.00 | | 72 | 22.0 | 60 | 15.7 | 52 | 11.0 | 50 | 7 | 080 | | 28.88 | | | M | AA | | 30.02 |
| 27 | 0749 | 0 | SCT150 BKN200 | 20.00 | | 75 | 24.0 | 61 | 15.8 | 50 | 10.0 | 42 | 10 | 050 | | 28.89 | | | M | AA | | 30.03 |
| 27 | 0847 | 0 | SCT150 BKN200 | 20.00 | | 79 | 26.0 | 61 | 16.1 | 48 | 9.0 | 34 | 11 | 050 | | 28.89 | | | M | AA | | 30.03 |
| 27 | 0947 | 0 | SCT100 BKN200 | 20.00 | | 81 | 27.0 | 63 | 17.0 | 50 | 10.0 | 34 | 6 | 060 | | 28.90 | | | M | AA | | 30.04 |
| 27 | 1047 | 0 | SCT100 BKN200 | 20.00 | | 81 | 27.0 | 63 | 17.0 | 50 | 10.0 | 34 | 9 | 080 | | 28.90 | | | M | AA | | 30.04 |
| 27 | 1247 | 0 | FEW120 BKN180 BKN250 | 20.00 | | 84 | 29.0 | 64 | 17.6 | 50 | 10.0 | 31 | 10 | 030 | | 28.83 | | | M | AA | | 29.97 |
| 27 | 1350 | 0 | FEW120 BKN180 BKN250 | 20.00 | | 86 | 30.0 | 65 | 18.5 | 52 | 11.0 | 31 | 10 | 080 | | 28.80 | | | M | AA | | 29.94 |
| 27 | 1453 | 0 | FEW100 BKN180 BKN250 | 20.00 | | 88 | 31.0 | 66 | 18.8 | 52 | 11.0 | 29 | 10 | 080 | | 28.79 | | | M | AA | | 29.93 |
| 27 | 1547 | 0 | FEW100 BKN180 BKN250 | 20.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 8 | 070 | | 28.77 | | | M | AA | | 29.91 |
| 27 | 1650 | 0 | FEW100 SCT180 | 20.00 | | 88 | 31.0 | 64 | 17.9 | 48 | 9.0 | 25 | 5 | 080 | | 28.76 | | | M | AA | | 29.89 |
| 27 | 1750 | 0 | FEW100 SCT180 | 20.00 | | 86 | 30.0 | 64 | 17.5 | 48 | 9.0 | 27 | 0 | 000 | | 28.76 | | | M | AA | | 29.89 |
| 27 | 1847 | 0 | FEW100 SCT180 | 10.00 | | 84 | 29.0 | 65 | 18.1 | 52 | 11.0 | 33 | 0 | 000 | | 28.77 | | | M | AA | | 29.90 |
| 27 | 1950 | 0 | FEW100 SCT180 | 10.00 | | 81 | 27.0 | 62 | 16.5 | 48 | 9.0 | 32 | 8 | 120 | | 28.77 | | | M | AA | | 29.91 |

Dynamically generated Tue Feb 14 18:46:42 EST 2017 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
GLENDALE MUNICIPAL AIRPORT (53126)
GLENDALE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1066 ft. above sea level

Latitude: 33.527

Longitude: -112.295

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0547 | 0 | BKN120 BKN180 | 20.00 | | 73 | 23.0 | 62 | 16.8 | 55 | 13.0 | 53 | 0 | 000 | | 28.81 | | | M | AA | | 29.95 |
| 28 | 0648 | 0 | SCT120 BKN180 | 20.00 | | 73 | 23.0 | 62 | 16.8 | 55 | 13.0 | 53 | 0 | 000 | | 28.83 | | | M | AA | | 29.97 |
| 28 | 0747 | 0 | FEW080 SCT120 BKN180 | 20.00 | | 79 | 26.0 | 64 | 18.0 | 55 | 13.0 | 44 | 0 | 000 | | 28.84 | | | M | AA | | 29.98 |
| 28 | 0847 | 0 | FEW080 SCT120 SCT250 | 20.00 | | 82 | 28.0 | 65 | 18.5 | 55 | 13.0 | 40 | 0 | 000 | | 28.85 | | | M | AA | | 29.99 |
| 28 | 0947 | 0 | FEW080 SCT120 SCT250 | 20.00 | | 86 | 30.0 | 67 | 19.2 | 55 | 13.0 | 35 | 6 | 040 | | 28.86 | | | M | AA | | 30.00 |
| 28 | 1052 | 0 | FEW080 SCT120 BKN250 | 20.00 | | 90 | 32.0 | 68 | 19.9 | 55 | 13.0 | 31 | 11 | 090 | | 28.84 | | | M | AA | | 29.98 |
| 28 | 1153 | 0 | FEW080 SCT120 BKN250 | 20.00 | | 90 | 32.0 | 68 | 19.9 | 55 | 13.0 | 31 | 8 | 080 | | 28.83 | | | M | AA | | 29.97 |
| 28 | 1247 | 0 | BKN080 BKN120 BKN250 | 20.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 6 | 080 | | 28.81 | | | M | AA | | 29.95 |
| 28 | 1350 | 0 | BKN080 BKN120 BKN250 | 20.00 | | 93 | 34.0 | 68 | 20.2 | 54 | 12.0 | 27 | 9 | 100 | | 28.79 | | | M | AA | | 29.93 |
| 28 | 1450 | 0 | BKN080 BKN120 BKN250 | 20.00 | | 97 | 36.0 | 70 | 20.8 | 54 | 12.0 | 24 | 6 | 100 | | 28.78 | | | M | AA | | 29.92 |
| 28 | 1550 | 0 | BKN080 BKN120 BKN250 | 20.00 | | 95 | 35.0 | 68 | 20.0 | 52 | 11.0 | 23 | 11 | 100 | 17 | 28.77 | | | M | AA | | 29.91 |
| 28 | 1647 | 0 | SCT080 BKN150 BKN200 | 20.00 | | 97 | 36.0 | 70 | 20.8 | 54 | 12.0 | 24 | 9 | 130 | | 28.77 | | | M | AA | | 29.90 |
| 28 | 1748 | 0 | SCT080 BKN150 BKN200 | 20.00 | | 93 | 34.0 | 69 | 20.4 | 55 | 13.0 | 28 | 7 | 120 | | 28.77 | | | M | AA | | 29.90 |
| 28 | 1850 | 0 | SCT080 BKN150 BKN200 | 20.00 | | 93 | 34.0 | 69 | 20.4 | 55 | 13.0 | 28 | 14 | 140 | | 28.78 | | | M | AA | | 29.92 |
| 28 | 1947 | 0 | SCT080 BKN150 BKN200 | 20.00 | | 81 | 27.0 | 68 | 20.1 | 61 | 16.0 | 51 | 0 | 000 | | 28.82 | | | M | AA | | 29.96 |

Dynamically generated Tue Feb 14 18:47:22 EST 2017 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
PHOENIX GOODYEAR AIRPORT (03186)
GOODYEAR, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 968 ft. above sea level

Latitude: 33.416

Longitude: -112.383

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0547 | 0 | SCT150 BKN230 | 10.00 | | 72 | 22.0 | 59 | 14.7 | 48 | 9.0 | 43 | 6 | 060 | | 28.96 | | | M | AA | | 29.99 |
| 27 | 0647 | 0 | SCT060 BKN130 | 10.00 | | 73 | 23.0 | 59 | 14.9 | 48 | 9.0 | 41 | 9 | 110 | | 28.97 | | | M | AA | | 30.01 |
| 27 | 0747 | 0 | SCT060 BKN130 | 10.00 | | 73 | 23.0 | 61 | 15.9 | 52 | 11.0 | 48 | 7 | 170 | | 29.00 | | | M | AA | | 30.03 |
| 27 | 0847 | 0 | SCT090 SCT150 BKN200 | 10.00 | | 84 | 29.0 | 61 | 16.0 | 43 | 6.0 | 24 | 9 | 090 | | 28.98 | | | M | AA | | 30.02 |
| 27 | 0947 | 0 | FEW110 SCT190 BKN230 | 10.00 | | 79 | 26.0 | 61 | 16.2 | 48 | 9.0 | 34 | 10 | 110 | | 29.00 | | | M | AA | | 30.04 |
| 27 | 1047 | 0 | SCT120 BKN170 BKN230 | 10.00 | | 77 | 25.0 | 62 | 16.8 | 52 | 11.0 | 42 | 10 | 110 | | 29.00 | | | M | AA | | 30.04 |
| 27 | 1147 | 0 | FEW120 OVC170 | 10.00 | | 81 | 27.0 | 63 | 17.0 | 50 | 10.0 | 34 | 8 | 060 | | 28.97 | | | M | AA | | 30.01 |
| 27 | 1247 | 0 | FEW120 SCT170 BKN200 | 10.00 | | 86 | 30.0 | 64 | 18.0 | 50 | 10.0 | 29 | 8 | 090 | | 28.95 | | | M | AA | | 29.98 |
| 27 | 1347 | 0 | FEW100 SCT170 BKN220 | 10.00 | | 86 | 30.0 | 65 | 18.5 | 52 | 11.0 | 31 | 11 | 100 | | 28.91 | | | M | AA | | 29.94 |
| 27 | 1447 | 0 | FEW100 BKN170 BKN220 | 10.00 | | 86 | 30.0 | 65 | 18.5 | 52 | 11.0 | 31 | 11 | 110 | | 28.89 | | | M | AA | | 29.92 |
| 27 | 1547 | 0 | FEW080 SCT170 BKN220 | 10.00 | | 86 | 30.0 | 65 | 18.5 | 52 | 11.0 | 31 | 9 | 090 | | 28.88 | | | M | AA | | 29.91 |
| 27 | 1647 | 0 | FEW080 SCT170 SCT220 | 10.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 9 | 080 | | 28.86 | | | M | AA | | 29.89 |
| 27 | 1747 | 0 | FEW080 SCT170 BKN220 | 10.00 | | 86 | 30.0 | 64 | 18.0 | 50 | 10.0 | 29 | 7 | 050 | | 28.85 | | | M | AA | | 29.88 |
| 27 | 1847 | 0 | FEW080 SCT150 BKN220 | 10.00 | | 84 | 29.0 | 65 | 18.1 | 52 | 11.0 | 33 | 6 | 020 | | 28.87 | | | M | AA | | 29.90 |
| 27 | 1947 | 0 | FEW070 SCT150 BKN220 | 10.00 | | 79 | 26.0 | 63 | 17.1 | 52 | 11.0 | 39 | 5 | VR | | 28.87 | | | M | AA | | 29.90 |
| 27 | 2047 | 0 | SCT100 BKN180 | 10.00 | | 79 | 26.0 | 63 | 17.2 | 52 | 11.0 | 39 | 7 | 360 | | 28.88 | | | M | AA | | 29.91 |

Dynamically generated Tue Feb 14 18:50:36 EST 2017 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
PHOENIX GOODYEAR AIRPORT (03186)
GOODYEAR, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 968 ft. above sea level

Latitude: 33.416

Longitude: -112.383

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0547 | 0 | BKN120 BKN230 | 10.00 | | 73 | 23.0 | 62 | 16.5 | 54 | 12.0 | 52 | 7 | 030 | | 28.92 | | | M | AA | | 29.95 |
| 28 | 0647 | 0 | FEW080 SCT120 SCT200 | 10.00 | | 73 | 23.0 | 62 | 16.8 | 55 | 13.0 | 53 | 5 | 080 | | 28.94 | | | M | AA | | 29.97 |
| 28 | 0747 | 0 | SCT080 BKN120 BKN250 | 10.00 | | 77 | 25.0 | 64 | 17.6 | 55 | 13.0 | 47 | 5 | 060 | | 28.95 | | | M | AA | | 29.98 |
| 28 | 0847 | 0 | SCT060 BKN100 | 10.00 | | 81 | 27.0 | 65 | 18.3 | 55 | 13.0 | 41 | 6 | 030 | | 28.96 | | | M | AA | | 29.99 |
| 28 | 0947 | 0 | SCT060 BKN120 | 10.00 | | 84 | 29.0 | 66 | 18.9 | 55 | 13.0 | 37 | 6 | 060 | | 28.96 | | | M | AA | | 29.99 |
| 28 | 1047 | 0 | BKN070 BKN120 | 10.00 | | 88 | 31.0 | 68 | 20.1 | 57 | 14.0 | 35 | 8 | 120 | | 28.95 | | | M | AA | | 29.98 |
| 28 | 1147 | 0 | BKN060 BKN110 | 10.00 | | 90 | 32.0 | 68 | 20.0 | 55 | 13.0 | 31 | 9 | 100 | | 28.94 | | | M | AA | | 29.97 |
| 28 | 1247 | 0 | SCT100 BKN150 | 10.00 | | 90 | 32.0 | 69 | 20.5 | 57 | 14.0 | 33 | 5 | 080 | | 28.92 | | | M | AA | | 29.95 |
| 28 | 1347 | 0 | SCT090 BKN150 BKN220 | 10.00 | | 91 | 33.0 | 69 | 20.6 | 57 | 14.0 | 32 | 8 | 120 | | 28.90 | | | M | AA | | 29.93 |
| 28 | 1447 | 0 | SCT090 BKN150 BKN220 | 10.00 | | 95 | 35.0 | 69 | 20.5 | 54 | 12.0 | 25 | 8 | 110 | | 28.88 | | | M | AA | | 29.91 |
| 28 | 1547 | 0 | SCT090 BKN150 BKN220 | 10.00 | | 95 | 35.0 | 69 | 20.8 | 55 | 13.0 | 26 | 9 | 180 | | 28.87 | | | M | AA | | 29.90 |
| 28 | 1647 | 0 | SCT090 BKN150 BKN220 | 10.00 | | 95 | 35.0 | 69 | 20.8 | 55 | 13.0 | 26 | 8 | 160 | | 28.86 | | | M | AA | | 29.89 |
| 28 | 1747 | 0 | BKN090 BKN150 BKN220 | 10.00 | | 91 | 33.0 | 70 | 21.2 | 59 | 15.0 | 34 | 9 | 120 | 17 | 28.86 | | | M | AA | | 29.89 |
| 28 | 1830 | 0 | BKN080 BKN200 | 10.00 | -TSRA | 90 | 32.0 | 72 | 22.2 | 63 | 17.0 | 41 | 14 | 180 | 23 | 28.88 | | | M | AA | | 29.91 |
| 28 | 1858 | 0 | BKN080 BKN200 | 10.00 | -RA | 82 | 28.0 | 70 | 20.9 | 63 | 17.0 | 53 | 6 | 250 | | 28.90 | | | M | AA | | 29.93 |
| 28 | 1947 | 0 | BKN080 BKN200 | 10.00 | -RA | 79 | 26.0 | 69 | 20.6 | 64 | 18.0 | 60 | 8 | 220 | | 28.92 | | | M | AA | | 29.95 |
| 28 | 2047 | 0 | FEW100 SCT150 BKN200 | 10.00 | | 82 | 28.0 | 70 | 20.9 | 63 | 17.0 | 53 | 6 | VR | | 28.94 | | | M | AA | | 29.97 |

Dynamically generated Tue Feb 14 18:50:55 EST 2017 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
LUKE AFB AIRPORT (23111)
GLENDALE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1085 ft. above sea level

Latitude: 33.55

Longitude: -112.366

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|-------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0058 | 0 | CLR | 10.00 | | 76 | 24.7 | 61 | 16.3 | 51 | 10.5 | 42 | 5 | 070 | | 28.83 | | | 29.95 | AA | | 29.99 |
| 27 | 0158 | 0 | FEW150 | 10.00 | | 74 | 23.2 | 61 | 15.9 | 51 | 10.6 | 45 | 7 | 040 | | 28.82 | | | 29.94 | AA | | 29.98 |
| 27 | 0258 | 0 | FEW150 | 10.00 | | 74 | 23.2 | 60 | 15.6 | 50 | 9.8 | 43 | 6 | 310 | | 28.81 | | | 29.93 | AA | | 29.97 |
| 27 | 0358 | 0 | CLR | 10.00 | | 71 | 21.9 | 60 | 15.5 | 52 | 11.3 | 51 | 2 | VR | | 28.80 | | | 29.93 | AA | | 29.96 |
| 27 | 0458 | 0 | CLR | 10.00 | | 73 | 22.7 | 59 | 15.1 | 49 | 9.6 | 43 | 7 | 070 | | 28.81 | | | 29.93 | AA | | 29.97 |
| 27 | 0558 | 0 | CLR | 10.00 | | 70 | 21.1 | 59 | 14.8 | 50 | 10.0 | 49 | 0 | 000 | | 28.82 | | | 29.95 | AA | | 29.98 |
| 27 | 0658 | 0 | CLR | 10.00 | | 74 | 23.2 | 60 | 15.4 | 49 | 9.3 | 41 | 5 | 090 | | 28.84 | | | 29.97 | AA | | 30.00 |
| 27 | 0758 | 0 | CLR | 10.00 | | 76 | 24.7 | 61 | 16.0 | 50 | 10.0 | 40 | 11 | 090 | | 28.86 | | | 29.99 | AA | | 30.02 |
| 27 | 0858 | 0 | CLR | 10.00 | | 79 | 26.3 | 62 | 16.4 | 49 | 9.5 | 35 | 11 | 070 | | 28.85 | | | 29.98 | AA | T | 30.01 |
| 27 | 0958 | 0 | CLR | 10.00 | | 80 | 26.9 | 62 | 16.6 | 49 | 9.4 | 34 | 10 | 100 | | 28.86 | | | 29.98 | AA | | 30.02 |
| 27 | 1058 | 0 | FEW120 | 10.00 | | 79 | 25.9 | 62 | 16.4 | 49 | 9.7 | 35 | 11 | 110 | | 28.85 | | | 29.98 | AA | | 30.01 |
| 27 | 1158 | 0 | FEW160 | 10.00 | | 83 | 28.3 | 63 | 17.4 | 50 | 9.8 | 32 | 11 | 050 | | 28.81 | | | 29.93 | AA | | 29.97 |
| 27 | 1258 | 0 | FEW140 SCT200 | 10.00 | | 85 | 29.2 | 64 | 17.8 | 50 | 9.8 | 30 | 7 | VR | | 28.79 | | | 29.91 | AA | | 29.95 |
| 27 | 1358 | 0 | FEW210 | 10.00 | | 86 | 29.9 | 64 | 18.0 | 50 | 10.1 | 29 | 11 | 100 | 22 | 28.76 | | | 29.88 | AA | | 29.92 |
| 27 | 1458 | 0 | CLR | 10.00 | | 87 | 30.3 | 65 | 18.1 | 50 | 10.2 | 28 | 8 | 050 | | 28.74 | | | 29.86 | AA | | 29.90 |
| 27 | 1558 | 0 | CLR | 10.00 | | 87 | 30.3 | 65 | 18.4 | 51 | 10.6 | 29 | 7 | 100 | | 28.72 | | | 29.85 | AA | | 29.88 |
| 27 | 1658 | 0 | CLR | 10.00 | | 87 | 30.7 | 64 | 17.9 | 49 | 9.5 | 27 | 7 | 080 | | 28.71 | | | 29.83 | AA | | 29.87 |
| 27 | 1758 | 0 | CLR | 10.00 | | 86 | 29.9 | 64 | 18.0 | 50 | 9.8 | 29 | 5 | 080 | | 28.71 | | | 29.84 | AA | | 29.87 |
| 27 | 1858 | 0 | SCT130 | 10.00 | | 84 | 28.8 | 63 | 17.3 | 49 | 9.7 | 30 | 3 | 020 | | 28.72 | | | 29.85 | AA | | 29.88 |
| 27 | 1958 | 0 | CLR | 10.00 | | 81 | 27.4 | 62 | 16.8 | 49 | 9.5 | 33 | 6 | 190 | | 28.74 | | | 29.86 | AA | | 29.89 |
| 27 | 2058 | 0 | FEW100 BKN180 | 10.00 | | 79 | 26.0 | 63 | 17.1 | 52 | 11.2 | 39 | 5 | 340 | | 28.74 | | | 29.87 | AA | | 29.90 |
| 27 | 2158 | 0 | CLR | 10.00 | | 80 | 26.4 | 62 | 16.6 | 49 | 9.5 | 34 | 3 | 360 | | 28.74 | | | 29.86 | AA | | 29.90 |
| 27 | 2258 | 0 | SCT110 | 10.00 | | 79 | 25.9 | 62 | 16.6 | 50 | 10.1 | 36 | 6 | 030 | | 28.75 | | | 29.88 | AA | | 29.91 |
| 27 | 2308 | 0 | BKN110 | 10.00 | | 77 | 25.0 | 61 | 16.2 | 50 | 10.0 | 39 | 8 | 330 | | 28.75 | | | M | AA | | 29.91 |
| 27 | 2318 | 0 | SCT110 | 10.00 | | 77 | 25.0 | 62 | 16.7 | 52 | 11.0 | 42 | 8 | 350 | | 28.75 | | | M | AA | | 29.91 |
| 27 | 2328 | 0 | BKN110 | 10.00 | | 77 | 25.0 | 62 | 16.7 | 52 | 11.0 | 42 | 7 | 360 | | 28.75 | | | M | AA | | 29.91 |
| 27 | 2338 | 0 | FEW110 | 10.00 | | 77 | 25.0 | 62 | 16.7 | 52 | 11.0 | 42 | 7 | 340 | | 28.75 | | | M | AA | | 29.91 |
| 27 | 2358 | 0 | FEW130 | 10.00 | | 76 | 24.5 | 61 | 16.3 | 51 | 10.6 | 42 | 7 | 340 | | 28.75 | | | 29.88 | AA | | 29.91 |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
LUKE AFB AIRPORT (23111)
GLENDALE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1085 ft. above sea level

Latitude: 33.55

Longitude: -112.366

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|-------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0058 | 0 | FEW120 | 8.00 | | 75 | 24.1 | 62 | 16.3 | 52 | 10.9 | 45 | 7 | 330 | | 28.74 | | | 29.86 | AA | | 29.90 |
| 28 | 0158 | 0 | CLR | 9.00 | | 73 | 22.8 | 60 | 15.7 | 51 | 10.5 | 46 | 6 | 340 | | 28.74 | | | 29.86 | AA | | 29.90 |
| 28 | 0258 | 0 | CLR | 10.00 | | 72 | 22.1 | 60 | 15.4 | 51 | 10.5 | 48 | 5 | 360 | | 28.74 | | | 29.86 | AA | | 29.89 |
| 28 | 0348 | 0 | BKN100 BKN130 | 10.00 | | 72 | 22.0 | 60 | 15.7 | 52 | 11.0 | 50 | 3 | 030 | | 28.75 | | | M | AA | | 29.91 |
| 28 | 0358 | 0 | SCT100 | 10.00 | | 72 | 22.1 | 60 | 15.7 | 52 | 10.9 | 50 | 5 | 030 | | 28.75 | | | 29.88 | AA | | 29.91 |
| 28 | 0458 | 0 | SCT130 | 10.00 | | 74 | 23.5 | 62 | 16.4 | 53 | 11.5 | 48 | 8 | 340 | | 28.75 | | | 29.88 | AA | | 29.91 |
| 28 | 0558 | 0 | SCT120 | 10.00 | | 73 | 22.8 | 61 | 16.2 | 53 | 11.4 | 50 | 2 | 040 | | 28.77 | | | 29.90 | AA | | 29.93 |
| 28 | 0658 | 0 | SCT100 | 10.00 | | 72 | 22.4 | 61 | 16.3 | 54 | 12.1 | 53 | 5 | 330 | | 28.79 | | | 29.92 | AA | | 29.95 |
| 28 | 0758 | 0 | CLR | 10.00 | | 79 | 26.1 | 64 | 17.9 | 55 | 12.5 | 44 | 5 | 340 | | 28.80 | | | 29.93 | AA | | 29.96 |
| 28 | 0858 | 0 | CLR | 10.00 | | 82 | 27.9 | 66 | 18.8 | 56 | 13.1 | 41 | 10 | 040 | | 28.81 | | | 29.93 | AA | | 29.97 |
| 28 | 0958 | 0 | CLR | 10.00 | | 86 | 30.0 | 67 | 19.5 | 56 | 13.1 | 36 | 8 | 070 | | 28.81 | | | 29.93 | AA | | 29.97 |
| 28 | 1058 | 0 | CLR | 10.00 | | 88 | 31.2 | 67 | 19.6 | 55 | 12.9 | 33 | 8 | 100 | | 28.80 | | | 29.92 | AA | | 29.96 |
| 28 | 1158 | 0 | FEW190 | 10.00 | | 90 | 32.3 | 68 | 19.9 | 55 | 12.9 | 31 | 15 | 140 | | 28.79 | | | 29.91 | AA | | 29.95 |
| 28 | 1258 | 0 | FEW160 | 10.00 | | 91 | 32.9 | 69 | 20.4 | 56 | 13.1 | 31 | 5 | 110 | | 28.76 | | | 29.88 | AA | | 29.92 |
| 28 | 1358 | 0 | CLR | 10.00 | | 94 | 34.6 | 69 | 20.6 | 55 | 12.8 | 27 | 9 | 100 | | 28.74 | | | 29.86 | AA | | 29.90 |
| 28 | 1458 | 0 | CLR | 10.00 | | 95 | 34.9 | 69 | 20.5 | 54 | 12.1 | 25 | 10 | 140 | 24 | 28.74 | | | 29.85 | AA | | 29.89 |
| 28 | 1558 | 0 | SCT090 | 10.00 | | 95 | 35.1 | 69 | 20.3 | 53 | 11.5 | 24 | 10 | 150 | | 28.72 | | | 29.84 | AA | | 29.88 |
| 28 | 1658 | 0 | CLR | 10.00 | | 94 | 34.6 | 69 | 20.3 | 54 | 12.2 | 26 | 9 | 180 | | 28.72 | | | 29.84 | AA | | 29.88 |
| 28 | 1758 | 0 | BKN090 | 10.00 | | 94 | 34.2 | 70 | 20.9 | 56 | 13.1 | 28 | 10 | 140 | | 28.72 | | | 29.84 | AA | | 29.88 |
| 28 | 1808 | 0 | SCT090 | 10.00 | | 93 | 34.0s | 69 | 20.4 | 55 | 13.0 | 28 | 14 | 140 | 22 | 28.72 | | | M | AA | T | 29.88 |
| 28 | 1838 | 0 | SCT041 SCT110 | 7.00 | -RA | 91 | 33.0 | 72 | 22.3 | 63 | 17.0 | 39 | 6 | 180 | | 28.74 | | | M | AA | T | 29.90 |
| 28 | 1850 | 0 | FEW041 SCT100 BKN150 | 10.00 | | 88 | 31.0 | 70 | 21.3 | 61 | 16.0 | 40 | 1 | VR | | 28.74 | | | M | AA | T | 29.90 |
| 28 | 1858 | 0 | SCT039 BKN090 BKN110 | 9.00 | | 87 | 30.8 | 72 | 22.0 | 64 | 17.5 | 46 | 18 | 190 | 26 | 28.75 | | | 29.88 | AA | T | 29.91 |
| 28 | 1859 | 0 | SCT036 BKN090 BKN110 | 9.00 | | 88 | 31.0 | 71 | 21.8 | 63 | 17.0 | 43 | 20 | 190 | 26 | 28.75 | | | M | AA | T | 29.91 |
| 28 | 1904 | 0 | SCT039 BKN090 BKN110 | 9.00 | | 86 | 30.0 | 73 | 22.5 | 66 | 19.0 | 51 | 13 | 190 | 26 | 28.76 | | | M | AA | | 0.01 29.92 |
| 28 | 1914 | 0 | SCT039 SCT090 | 10.00 | -TSRA | 82 | 28.0 | 71 | 21.8 | 66 | 19.0 | 58 | 7 | 250 | | 28.77 | | | M | AA | | 0.01 29.93 |
| 28 | 1919 | 0 | SCT039 BKN090 | 10.00 | -RA VCTS | 82 | 28.0 | 70 | 20.8 | 63 | 17.0 | 53 | 7 | 250 | | 28.75 | | | M | AA | | 0.01 29.91 |
| 28 | 1929 | 0 | FEW038 BKN090 | 10.00 | | 82 | 28.0 | 71 | 21.8 | 66 | 19.0 | 58 | 10 | 240 | 25 | 28.77 | | | M | AA | | 0.01 29.93 |
| 28 | 1933 | 0 | BKN090 | 10.00 | -RA | 82 | 28.0 | 70 | 21.2 | 64 | 18.0 | 55 | 11 | 250 | 18 | 28.77 | | | M | AA | | 0.01 29.93 |
| 28 | 1944 | 0 | SCT090 BKN110 | 10.00 | | 82 | 28.0 | 71 | 21.8 | 66 | 19.0 | 58 | 7 | 220 | | 28.77 | | | M | AA | | 0.01 29.93 |
| 28 | 1958 | 0 | BKN100 | 10.00 | | 81 | 27.4 | 70 | 21.3 | 65 | 18.4 | 58 | 7 | VR | | 28.78 | | | 29.91 | AA | | 0.01 29.94 |
| 28 | 2008 | 0 | SCT100 | 10.00 | | 81 | 27.0 | 72 | 22.3 | 68 | 20.0 | 65 | 6 | 070 | | 28.78 | | | M | AA | | 29.94 |
| 28 | 2058 | 0 | SCT130 | 10.00 | | 79 | 26.2 | 72 | 22.0 | 68 | 20.1 | 69 | 5 | 020 | | 28.80 | | | 29.93 | AA | | 29.96 |
| 28 | 2158 | 0 | BKN140 | 10.00 | | 78 | 25.3 | 72 | 22.1 | 69 | 20.5 | 74 | 6 | 360 | | 28.80 | | | 29.92 | AA | | 29.96 |
| 28 | 2258 | 0 | OVC150 | 10.00 | | 76 | 24.6 | 69 | 20.8 | 66 | 19.0 | 71 | 9 | 020 | | 28.82 | | | 29.94 | AA | | 29.98 |
| 28 | 2358 | 0 | OVC150 | 10.00 | | 76 | 24.5 | 69 | 20.8 | 66 | 18.9 | 71 | 5 | 350 | | 28.83 | | | 29.95 | AA | | 29.99 |

Dynamically generated Tue Feb 14 18:49:20 EST 2017 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
SCOTTSDALE AIRPORT (03192)
SCOTTSDALE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1473 ft. above sea level

Latitude: 33.622

Longitude: -111.910

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0053 | 12 | CLR | 10.00 | | 77 | 25.0 | 59 | 15.2 | 46 | 7.8 | 33 | 9 | 080 | | 28.43 | | | 29.95 | AA | | 30.03 |
| 27 | 0153 | 12 | CLR | 10.00 | | 76 | 24.4 | 59 | 15.0 | 46 | 7.8 | 35 | 7 | 080 | | 28.42 | | | 29.94 | AA | | 30.02 |
| 27 | 0253 | 12 | CLR | 10.00 | | 76 | 24.4 | 60 | 15.2 | 47 | 8.3 | 36 | 8 | 090 | | 28.40 | | | 29.93 | AA | | 30.00 |
| 27 | 0353 | 12 | CLR | 10.00 | | 75 | 23.9 | 59 | 15.0 | 47 | 8.3 | 37 | 6 | 100 | | 28.40 | | | 29.93 | AA | | 30.00 |
| 27 | 0453 | 12 | CLR | 10.00 | | 76 | 24.4 | 60 | 15.2 | 47 | 8.3 | 36 | 11 | 100 | | 28.40 | | | 29.93 | AA | | 30.00 |
| 27 | 0553 | 12 | CLR | 10.00 | | 75 | 23.9 | 60 | 15.3 | 48 | 8.9 | 39 | 9 | 100 | 17 | 28.41 | | | 29.95 | AA | | 30.01 |
| 27 | 0653 | 12 | CLR | 10.00 | | 72 | 22.2 | 58 | 14.6 | 48 | 8.9 | 43 | 5 | 130 | | 28.45 | | | 29.98 | AA | | 30.05 |
| 27 | 0753 | 12 | CLR | 10.00 | | 73 | 22.8 | 59 | 15.1 | 49 | 9.4 | 43 | 5 | 110 | | 28.46 | | | 30.00 | AA | | 30.06 |
| 27 | 0853 | 12 | CLR | 10.00 | | 80 | 26.7 | 61 | 16.1 | 47 | 8.3 | 31 | 6 | 070 | | 28.44 | | | 29.97 | AA | | 30.04 |
| 27 | 0953 | 12 | BKN100 | 10.00 | | 79 | 26.1 | 61 | 15.9 | 47 | 8.3 | 32 | 11 | 130 | | 28.46 | | | 29.99 | AA | | 30.06 |
| 27 | 1053 | 12 | FEW055 SCT075 BKN110 | 10.00 | | 77 | 25.0 | 61 | 16.2 | 50 | 10.0 | 39 | 9 | 090 | | 28.46 | | | 29.99 | AA | | 30.06 |
| 27 | 1153 | 12 | FEW047 FEW070 OVC100 | 10.00 | -RA | 76 | 24.4 | 62 | 16.8 | 53 | 11.7 | 45 | 16 | 060 | 34 | 28.39 | | | 29.93 | AA | T | 29.99 |
| 27 | 1253 | 12 | CLR | 10.00 | | 82 | 27.8 | 63 | 17.2 | 50 | 10.0 | 33 | 6 | 070 | | 28.39 | | | 29.92 | AA | T | 29.99 |
| 27 | 1353 | 12 | CLR | 10.00 | | 83 | 28.3 | 63 | 17.4 | 50 | 10.0 | 32 | 9 | 100 | | 28.36 | | | 29.89 | AA | | 29.96 |
| 27 | 1453 | 12 | CLR | 10.00 | | 86 | 30.0 | 63 | 17.2 | 47 | 8.3 | 26 | 9 | 110 | 18 | 28.34 | | | 29.87 | AA | | 29.94 |
| 27 | 1553 | 12 | CLR | 10.00 | | 86 | 30.0 | 63 | 17.0 | 46 | 7.8 | 25 | 3 | VR | | 28.32 | | | 29.85 | AA | | 29.92 |
| 27 | 1653 | 12 | CLR | 10.00 | | 86 | 30.0 | 63 | 17.0 | 46 | 7.8 | 25 | 5 | 120 | | 28.30 | | | 29.83 | AA | | 29.90 |
| 27 | 1753 | 12 | CLR | 10.00 | | 86 | 30.0 | 63 | 17.2 | 47 | 8.3 | 26 | 3 | 090 | | 28.30 | | | 29.83 | AA | | 29.90 |
| 27 | 1853 | 12 | CLR | 10.00 | | 84 | 28.9 | 63 | 17.3 | 49 | 9.4 | 30 | 3 | 170 | | 28.32 | | | 29.85 | AA | | 29.92 |
| 27 | 1948 | 12 | BKN016 | 3.00 | HZ | 81 | 27.0 | 63 | 17.0 | 50 | 10.0 | 34 | 6 | 210 | | 28.33 | | | M | SP | | 29.93 |
| 27 | 1951 | 12 | BKN016 | 2.50 | HZ | 81 | 27.0 | 63 | 17.0 | 50 | 10.0 | 34 | 5 | 200 | | 28.33 | | | M | SP | | 29.93 |
| 27 | 1953 | 12 | BKN014 | 2.00 | HZ | 81 | 27.2 | 63 | 17.0 | 50 | 10.0 | 34 | 3 | 200 | | 28.33 | | | 29.87 | AA | | 29.93 |
| 27 | 2002 | 12 | OVC012 | 1.50 | HZ | 80 | 26.7 | 62 | 16.8 | 50 | 10.0 | 35 | 3 | 230 | | 28.33 | | | M | SP | | 29.93 |
| 27 | 2014 | 12 | CLR | 4.00 | HZ | 80 | 26.7 | 62 | 16.8 | 50 | 10.0 | 35 | 3 | 180 | | 28.33 | | | M | SP | | 29.93 |
| 27 | 2053 | 12 | CLR | 4.00 | HZ | 79 | 26.1 | 62 | 16.8 | 51 | 10.6 | 38 | 0 | 000 | | 28.35 | | | 29.88 | AA | | 29.95 |
| 27 | 2100 | 12 | OVC006 | 2.00 | HZ | 79 | 26.1 | 62 | 16.8 | 51 | 10.6 | 38 | 0 | 000 | | 28.35 | | | M | SP | | 29.95 |
| 27 | 2126 | 12 | OVC006 | 3.00 | HZ | 79 | 26.1 | 62 | 16.8 | 51 | 10.6 | 38 | 0 | 000 | | 28.35 | | | M | SP | | 29.95 |
| 27 | 2151 | 12 | SCT008 | 5.00 | HZ | 79 | 26.0 | 62 | 16.6 | 50 | 10.0 | 36 | 0 | 000 | | 28.35 | | | M | SP | | 29.95 |
| 27 | 2153 | 12 | SCT008 | 5.00 | HZ | 79 | 26.1 | 62 | 16.6 | 50 | 10.0 | 36 | 0 | 000 | | 28.35 | | | 29.88 | AA | | 29.95 |
| 27 | 2253 | 12 | FEW120 | 10.00 | | 80 | 26.7 | 61 | 16.3 | 48 | 8.9 | 33 | 5 | 040 | | 28.35 | | | 29.88 | AA | | 29.95 |
| 27 | 2353 | 12 | CLR | 10.00 | | 79 | 26.1 | 62 | 16.6 | 50 | 10.0 | 36 | 6 | 360 | | 28.35 | | | 29.88 | AA | | 29.95 |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
SCOTTSDALE AIRPORT (03192)
SCOTTSDALE, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1473 ft. above sea level

Latitude: 33.622

Longitude: -111.910

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|-------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0053 | 12 | CLR | 10.00 | VCTS | 78 | 25.6 | 62 | 16.6 | 51 | 10.6 | 39 | 5 | 330 | 16 | 28.34 | | 29.87 | AA | T | 29.94 | |
| 28 | 0153 | 12 | CLR | 10.00 | | 74 | 23.3 | 61 | 16.1 | 52 | 11.1 | 46 | 0 | 000 | | 28.34 | | 29.87 | AA | | 29.94 | |
| 28 | 0253 | 12 | CLR | 10.00 | | 75 | 23.9 | 61 | 16.3 | 52 | 11.1 | 45 | 0 | 000 | | 28.34 | | 29.87 | AA | | 29.94 | |
| 28 | 0353 | 12 | FEW095 BKN120 | 10.00 | | 79 | 26.1 | 62 | 16.8 | 51 | 10.6 | 38 | 8 | 100 | | 28.35 | | 29.88 | AA | | 29.95 | |
| 28 | 0453 | 12 | FEW110 | 10.00 | | 74 | 23.3 | 62 | 16.4 | 53 | 11.7 | 48 | 0 | 000 | | 28.35 | | 29.88 | AA | | 29.95 | |
| 28 | 0553 | 12 | SCT100 | 10.00 | | 76 | 24.4 | 62 | 16.8 | 53 | 11.7 | 45 | 3 | 090 | | 28.36 | | 29.89 | AA | | 29.96 | |
| 28 | 0630 | 12 | CLR | 10.00 | | 77 | 25.0 | 63 | 17.0 | 53 | 11.7 | 43 | 5 | 080 | | 28.37 | | M | SP | | 29.97 | |
| 28 | 0645 | 12 | FEW120 | 10.00 | | 77 | 25.0 | 63 | 17.3 | 54 | 12.2 | 45 | 5 | 040 | | 28.38 | | M | SP | | 29.98 | |
| 28 | 0653 | 12 | SCT085 | 10.00 | | 78 | 25.6 | 63 | 17.2 | 53 | 11.7 | 42 | 5 | 020 | | 28.38 | | 29.91 | AA | | 29.98 | |
| 28 | 0753 | 12 | CLR | M | | 81 | 27.2 | 64 | 17.7 | 53 | 11.7 | 38 | 5 | 080 | | 28.39 | | 29.92 | AA | | 29.99 | |
| 28 | 0853 | 12 | FEW100 | M | | 83 | 28.3 | 65 | 18.1 | 53 | 11.7 | 36 | 8 | 090 | 28.40 | | 29.93 | AA | 30.00 | | | |
| 28 | 0953 | 12 | SCT090 SCT110 | M | | 86 | 30.0 | 66 | 18.7 | 53 | 11.7 | 32 | 9 | 090 | 28.41 | | 29.93 | AA | 30.01 | | | |
| 28 | 1053 | 12 | CLR | M | | 87 | 30.6 | 66 | 18.9 | 53 | 11.7 | 31 | 7 | 150 | 28.40 | | 29.92 | AA | 30.00 | | | |
| 28 | 1153 | 12 | SCT110 | M | | 90 | 32.2 | 67 | 19.4 | 53 | 11.7 | 28 | 8 | 100 | 28.39 | | 29.91 | AA | 29.99 | | | |
| 28 | 1253 | 12 | FEW080 SCT110 | 10.00 | | 91 | 32.8 | 67 | 19.5 | 53 | 11.7 | 27 | 5 | 070 | 28.37 | | 29.89 | AA | 29.97 | | | |
| 28 | 1353 | 12 | CLR | 10.00 | | 92 | 33.3 | 68 | 19.7 | 53 | 11.7 | 27 | 10 | 180 | 28.35 | | 29.87 | AA | 29.95 | | | |
| 28 | 1453 | 12 | CLR | 10.00 | | 93 | 33.9 | 68 | 19.9 | 53 | 11.7 | 26 | 9 | 160 | 28.34 | | 29.86 | AA | 29.94 | | | |
| 28 | 1553 | 12 | CLR | 10.00 | | 92 | 33.3 | 68 | 19.7 | 53 | 11.7 | 27 | 7 | 180 | 28.33 | | 29.85 | AA | 29.93 | | | |
| 28 | 1653 | 12 | CLR | 10.00 | | 92 | 33.3 | 67 | 19.5 | 52 | 11.1 | 26 | 7 | 190 | 28.33 | | 29.85 | AA | 29.93 | | | |
| 28 | 1753 | 12 | CLR | 10.00 | | 92 | 33.3 | 68 | 19.7 | 53 | 11.7 | 27 | 5 | 170 | 28.33 | | 29.85 | AA | 29.93 | | | |
| 28 | 1853 | 12 | SCT120 | 10.00 | | 86 | 30.0 | 67 | 19.5 | 56 | 13.3 | 36 | 11 | 110 | 28.37 | 20 | 29.89 | AA | 29.97 | | | |
| 28 | 1953 | 12 | CLR | 10.00 | | 86 | 30.0 | 67 | 19.2 | 55 | 12.8 | 35 | 3 | 170 | 28.38 | | 29.90 | AA | 29.98 | | | |
| 28 | 2053 | 12 | CLR | 10.00 | | 85 | 29.4 | 67 | 19.6 | 57 | 13.9 | 39 | 5 | VR | 28.40 | | 29.92 | AA | 30.00 | | | |
| 28 | 2153 | 12 | CLR | 10.00 | | 85 | 29.4 | 67 | 19.3 | 56 | 13.3 | 37 | 0 | 000 | 28.41 | | 29.93 | AA | 30.01 | | | |
| 28 | 2253 | 12 | CLR | 10.00 | | 83 | 28.3 | 66 | 18.9 | 56 | 13.3 | 40 | 3 | 350 | 28.42 | | 29.94 | AA | 30.02 | | | |
| 28 | 2353 | 12 | CLR | 10.00 | | 82 | 27.8 | 66 | 19.0 | 57 | 13.9 | 43 | 0 | 000 | 28.43 | | 29.95 | AA | T | 30.03 | | |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
PHOENIX SKY HARBOR INTL AIRPORT (23183)
PHOENIX, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1107 ft. above sea level

Latitude: 33.427

Longitude: -112.003

Data Version: VER3

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0051 | 11 | SCT150 BKN230 | 10.00 | | 76 | 24.4 | 60 | 15.5 | 48 | 8.9 | 37 | 8 | 080 | | 28.81 | | | 29.94 | AA | | 29.99 |
| 27 | 0151 | 11 | SCT150 BKN230 | 10.00 | | 76 | 24.4 | 60 | 15.5 | 48 | 8.9 | 37 | 7 | 080 | | 28.80 | | | 29.93 | AA | | 29.98 |
| 27 | 0251 | 11 | SCT150 BKN230 | 10.00 | | 74 | 23.3 | 59 | 15.1 | 48 | 8.9 | 40 | 6 | 100 | | 28.79 | | | 29.92 | AA | | 29.97 |
| 27 | 0351 | 11 | SCT150 BKN230 | 10.00 | | 74 | 23.3 | 60 | 15.4 | 49 | 9.4 | 41 | 3 | 100 | | 28.78 | | | 29.91 | AA | | 29.96 |
| 27 | 0451 | 11 | SCT150 BKN230 | 10.00 | | 73 | 22.8 | 59 | 15.1 | 49 | 9.4 | 43 | 0 | 000 | | 28.80 | | | 29.93 | AA | | 29.98 |
| 27 | 0551 | 11 | SCT150 BKN230 | 10.00 | | 73 | 22.8 | 59 | 15.1 | 49 | 9.4 | 43 | 8 | 130 | | 28.80 | | | 29.94 | AA | | 29.98 |
| 27 | 0651 | 11 | FEW110 FEW170 SCT230 | 10.00 | | 73 | 22.8 | 59 | 15.1 | 49 | 9.4 | 43 | 13 | 130 | 23 | 28.83 | | | 29.97 | AA | | 30.01 |
| 27 | 0751 | 11 | FEW110 FEW170 SCT230 | 10.00 | | 75 | 23.9 | 60 | 15.6 | 49 | 9.4 | 40 | 16 | 120 | | 28.83 | | | 29.96 | AA | | 30.01 |
| 27 | 0851 | 11 | FEW110 SCT170 BKN230 | 10.00 | | 78 | 25.6 | 61 | 16.2 | 49 | 9.4 | 36 | 14 | 060 | | 28.82 | | | 29.95 | AA | | 30.00 |
| 27 | 0951 | 11 | SCT120 BKN170 BKN230 | 10.00 | | 78 | 25.6 | 61 | 16.2 | 49 | 9.4 | 36 | 15 | 130 | 21 | 28.85 | | | 29.98 | AA | T | 30.03 |
| 27 | 1051 | 11 | FEW120 BKN170 BKN230 | 10.00 | | 80 | 26.7 | 62 | 16.6 | 49 | 9.4 | 34 | 15 | 070 | | 28.82 | | | 29.96 | AA | T | 30.00 |
| 27 | 1151 | 11 | FEW060 FEW100 BKN170 | 10.00 | | 79 | 26.1 | 62 | 16.9 | 51 | 10.6 | 38 | 15 | 070 | | 28.80 | | | 29.93 | AA | | 29.98 |
| 27 | 1251 | 11 | FEW060 FEW100 SCT170 | 10.00 | | 81 | 27.2 | 64 | 17.5 | 52 | 11.1 | 37 | 9 | 080 | | 28.78 | | | 29.91 | AA | | 29.96 |
| 27 | 1351 | 11 | FEW070 FEW170 BKN220 | 10.00 | | 84 | 28.9 | 64 | 17.8 | 51 | 10.6 | 32 | 8 | 080 | | 28.74 | | | 29.88 | AA | | 29.92 |
| 27 | 1451 | 11 | FEW070 FEW170 BKN220 | 10.00 | | 85 | 29.4 | 64 | 17.8 | 50 | 10.0 | 30 | 3 | 030 | | 28.72 | | | 29.85 | AA | | 29.90 |
| 27 | 1551 | 11 | FEW070 FEW170 BKN220 | 10.00 | | 87 | 30.6 | 64 | 17.9 | 49 | 9.4 | 27 | 6 | VR | | 28.70 | | | 29.83 | AA | | 29.88 |
| 27 | 1651 | 11 | FEW070 FEW170 SCT220 | 10.00 | | 88 | 31.1 | 65 | 18.1 | 49 | 9.4 | 26 | 6 | 040 | | 28.69 | | | 29.81 | AA | | 29.86 |
| 27 | 1751 | 11 | FEW070 FEW120 FEW140 | 10.00 | | 87 | 30.6 | 64 | 17.7 | 48 | 8.9 | 26 | 6 | 050 | | 28.69 | | | 29.82 | AA | | 29.87 |
| 27 | 1849 | 11 | SCT011 BKN120 | 1.00 | BLDU | 82 | 28.0 | 64 | 17.7 | 52 | 11.0 | 35 | 18 | 170 | 24 | 28.72 | | M | | SP | | 29.90 |
| 27 | 1851 | 11 | SCT011 BKN120 | 1.00 | BLDU | 82 | 27.8 | 64 | 17.5 | 51 | 10.6 | 34 | 18 | 190 | | 28.72 | | | 29.85 | AA | | 29.90 |
| 27 | 1856 | 11 | BKN009 BKN120 | 1.00 | BLDU | 81 | 27.2 | 63 | 17.0 | 50 | 10.0 | 34 | 18 | 190 | 28 | 28.72 | | M | | SP | | 29.90 |
| 27 | 1934 | 11 | SCT007 BKN120 | 7.00 | | 81 | 27.2 | 63 | 17.0 | 50 | 10.0 | 34 | 7 | 170 | 18 | 28.71 | | M | | SP | | 29.89 |
| 27 | 1951 | 11 | FEW007 BKN120 | 10.00 | | 81 | 27.2 | 63 | 17.0 | 50 | 10.0 | 34 | 5 | VR | | 28.71 | | | 29.84 | AA | | 29.89 |
| 27 | 2051 | 11 | SCT130 BKN190 | 10.00 | | 80 | 26.7 | 62 | 16.6 | 49 | 9.4 | 34 | 5 | 130 | | 28.73 | | | 29.86 | AA | | 29.91 |
| 27 | 2151 | 11 | SCT120 BKN130 BKN190 | 10.00 | | 81 | 27.2 | 62 | 16.8 | 49 | 9.4 | 33 | 7 | 040 | | 28.72 | | | 29.85 | AA | | 29.90 |
| 27 | 2251 | 11 | SCT120 BKN130 BKN190 | 10.00 | | 80 | 26.7 | 62 | 16.8 | 50 | 10.0 | 35 | 3 | 090 | | 28.73 | | | 29.86 | AA | | 29.91 |
| 27 | 2351 | 11 | SCT250 | 10.00 | | 79 | 26.1 | 62 | 16.6 | 50 | 10.0 | 36 | 5 | VR | | 28.72 | | | 29.85 | AA | | 29.90 |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
PHOENIX SKY HARBOR INTL AIRPORT (23183)
PHOENIX, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1107 ft. above sea level

Latitude: 33.427

Longitude: -112.003

Data Version: VER3

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|----------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0051 | 11 | FEW150 BKN250 | 10.00 | | 76 | 24.4 | 62 | 16.5 | 52 | 11.1 | 43 | 5 | 230 | | 28.72 | | | 29.85 | AA | | 29.90 |
| 28 | 0151 | 11 | FEW150 SCT250 | 10.00 | | 76 | 24.4 | 61 | 16.3 | 51 | 10.6 | 42 | 0 | 000 | | 28.72 | | | 29.85 | AA | | 29.90 |
| 28 | 0251 | 11 | SCT140 BKN250 | 10.00 | | 75 | 23.9 | 61 | 16.3 | 52 | 11.1 | 45 | 0 | 000 | | 28.72 | | | 29.85 | AA | | 29.90 |
| 28 | 0351 | 11 | SCT070 SCT090 BKN110 | 10.00 | | 76 | 24.4 | 62 | 16.8 | 53 | 11.7 | 45 | 5 | 090 | | 28.74 | | | 29.87 | AA | | 29.92 |
| 28 | 0451 | 11 | BKN110 BKN150 | 10.00 | | 75 | 23.9 | 62 | 16.9 | 54 | 12.2 | 48 | 8 | 120 | | 28.73 | | | 29.86 | AA | | 29.91 |
| 28 | 0551 | 11 | SCT120 BKN150 | 10.00 | | 74 | 23.3 | 63 | 17.3 | 56 | 13.3 | 54 | 8 | 120 | | 28.75 | | | 29.88 | AA | | 29.93 |
| 28 | 0651 | 11 | SCT100 BKN250 | 10.00 | | 74 | 23.3 | 64 | 17.5 | 57 | 13.9 | 56 | 0 | 000 | | 28.76 | | | 29.90 | AA | T | 29.94 |
| 28 | 0751 | 11 | FEW100 FEW150 SCT250 | 10.00 | | 78 | 25.6 | 66 | 18.6 | 58 | 14.4 | 50 | 3 | 160 | | 28.78 | | | 29.91 | AA | | 29.96 |
| 28 | 0851 | 11 | FEW095 SCT150 BKN250 | 10.00 | | 82 | 27.8 | 66 | 19.1 | 57 | 13.9 | 43 | 6 | 120 | | 28.79 | | | 29.92 | AA | | 29.97 |
| 28 | 0951 | 11 | SCT090 SCT120 BKN190 | 10.00 | | 85 | 29.4 | 67 | 19.3 | 56 | 13.3 | 37 | 7 | 100 | | 28.79 | | | 29.92 | AA | | 29.97 |
| 28 | 1051 | 11 | SCT090 BKN130 BKN190 | 10.00 | | 86 | 30.0 | 67 | 19.5 | 56 | 13.3 | 36 | 8 | 110 | | 28.79 | | | 29.91 | AA | | 29.97 |
| 28 | 1151 | 11 | FEW075 SCT110 BKN190 | 10.00 | | 90 | 32.2 | 68 | 20.2 | 56 | 13.3 | 32 | 9 | 130 | | 28.77 | | | 29.89 | AA | T | 29.95 |
| 28 | 1251 | 11 | FEW080 SCT110 BKN160 | 10.00 | | 93 | 33.9 | 69 | 20.4 | 55 | 12.8 | 28 | 7 | 140 | | 28.75 | | | 29.87 | AA | | 29.93 |
| 28 | 1351 | 11 | FEW080 SCT110 BKN160 | 10.00 | | 95 | 35.0 | 69 | 20.8 | 55 | 12.8 | 26 | 6 | VR | | 28.72 | | | 29.85 | AA | | 29.90 |
| 28 | 1451 | 11 | FEW080 SCT110 BKN160 | 10.00 | | 94 | 34.4 | 69 | 20.3 | 54 | 12.2 | 26 | 11 | 190 | 22 | 28.72 | | | 29.84 | AA | | 29.90 |
| 28 | 1551 | 11 | SCT130 BKN180 BKN250 | 10.00 | | 95 | 35.0 | 69 | 20.5 | 54 | 12.2 | 25 | 6 | 150 | | 28.71 | | | 29.83 | AA | | 29.89 |
| 28 | 1651 | 11 | SCT130 BKN180 BKN250 | 10.00 | | 95 | 35.0 | 69 | 20.8 | 55 | 12.8 | 26 | 14 | 190 | | 28.70 | | | 29.83 | AA | | 29.88 |
| 28 | 1751 | 11 | SCT120 BKN150 BKN190 | 10.00 | | 93 | 33.9 | 69 | 20.4 | 55 | 12.8 | 28 | 10 | 150 | | 28.71 | | | 29.83 | AA | | 29.89 |
| 28 | 1851 | 11 | SCT120 BKN150 BKN190 | 10.00 | | 89 | 31.7 | 68 | 19.8 | 55 | 12.8 | 32 | 14 | 120 | 20 | 28.73 | | | 29.86 | AA | | 29.91 |
| 28 | 1951 | 11 | FEW055 FEW100 SCT120 | 10.00 | | 87 | 30.6 | 67 | 19.4 | 55 | 12.8 | 34 | 13 | 120 | | 28.75 | | | 29.88 | AA | T | 29.93 |
| 28 | 2051 | 11 | BKN140 BKN250 | 10.00 | | 86 | 30.0 | 69 | 20.3 | 59 | 15.0 | 40 | 9 | 100 | | 28.78 | | | 29.90 | AA | | 29.96 |
| 28 | 2151 | 11 | SCT095 BKN150 BKN250 | 10.00 | | 85 | 29.4 | 68 | 19.9 | 58 | 14.4 | 40 | 6 | 090 | | 28.79 | | | 29.91 | AA | | 29.97 |
| 28 | 2251 | 11 | SCT095 BKN150 OVC250 | 10.00 | | 85 | 29.4 | 67 | 19.6 | 57 | 13.9 | 39 | 6 | 110 | | 28.80 | | | 29.92 | AA | | 29.98 |
| 28 | 2351 | 11 | BKN150 OVC250 | 10.00 | | 84 | 28.9 | 67 | 19.4 | 57 | 13.9 | 40 | 8 | 080 | | 28.80 | | | 29.93 | AA | | 29.98 |

Dynamically generated Tue Feb 14 18:56:53 EST 2017 via <http://www.ncdc.noaa.gov/qclcd/QCLCD>

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
WILLIAMS GATEWAY AIRPORT (23104)
PHOENIX, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1382 ft. above sea level

Latitude: 33.3

Longitude: -111.666

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti-meter (in. hg) |
|------|------------|--------------|----------------------|-----------------|--------------|---------------|------|---------------|------|----------------|------|------------|------------------|----------|------------------|---------------------------|------------|-------------------|-----------------------------|-------------|--------------------|---------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 27 | 0015 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 5 | 050 | | 28.55 | | | M | AA | | 30.02 |
| 27 | 0035 | 0 | CLR | 10.00 | | 72 | 22.0 | 57 | 13.9 | 45 | 7.0 | 38 | 0 | 000 | | 28.55 | | | M | AA | | 30.02 |
| 27 | 0055 | 0 | CLR | 10.00 | | 70 | 21.0 | 56 | 13.5 | 45 | 7.0 | 41 | 0 | 000 | | 28.55 | | | M | AA | | 30.02 |
| 27 | 0115 | 0 | CLR | 10.00 | | 70 | 21.0 | 56 | 13.5 | 45 | 7.0 | 41 | 3 | 110 | | 28.55 | | | M | AA | | 30.02 |
| 27 | 0135 | 0 | CLR | 10.00 | | 70 | 21.0 | 57 | 13.7 | 46 | 8.0 | 42 | 5 | 130 | | 28.55 | | | M | AA | | 30.02 |
| 27 | 0155 | 0 | CLR | 10.00 | | 68 | 20.0 | 56 | 13.3 | 46 | 8.0 | 45 | 3 | 110 | | 28.55 | | | M | AA | | 30.02 |
| 27 | 0215 | 0 | CLR | 10.00 | | 68 | 20.0 | 56 | 13.3 | 46 | 8.0 | 45 | 5 | 110 | | 28.54 | | | M | AA | | 30.01 |
| 27 | 0235 | 0 | CLR | 10.00 | | 66 | 19.0 | 55 | 12.8 | 46 | 8.0 | 49 | 6 | 140 | | 28.53 | | | M | AA | | 30.00 |
| 27 | 0255 | 0 | CLR | 10.00 | | 68 | 20.0 | 56 | 13.3 | 46 | 8.0 | 45 | 9 | 130 | | 28.53 | | | M | AA | | 30.00 |
| 27 | 0315 | 0 | CLR | 10.00 | | 70 | 21.0 | 57 | 13.7 | 46 | 8.0 | 42 | 9 | 130 | | 28.52 | | | M | AA | | 29.99 |
| 27 | 0335 | 0 | CLR | 10.00 | | 68 | 20.0 | 56 | 13.3 | 46 | 8.0 | 45 | 6 | 050 | | 28.52 | | | M | AA | | 29.99 |
| 27 | 0355 | 0 | CLR | 10.00 | | 68 | 20.0 | 56 | 13.3 | 46 | 8.0 | 45 | 0 | 000 | | 28.52 | | | M | AA | | 29.99 |
| 27 | 0415 | 0 | CLR | 10.00 | | 68 | 20.0 | 56 | 13.3 | 46 | 8.0 | 45 | 3 | 080 | | 28.53 | | | M | AA | | 30.00 |
| 27 | 0435 | 0 | CLR | 10.00 | | 68 | 20.0 | 56 | 13.3 | 46 | 8.0 | 45 | 3 | 090 | | 28.54 | | | M | AA | | 30.01 |
| 27 | 0450 | 0 | CLRs | 20.00 | | 68 | 20.0 | 57 | 13.8 | 48 | 9.0 | 49 | 8 | 140 | | 28.53 | | | M | AA | | 30.00 |
| 27 | 0550 | 0 | SCT150 BKN200 | 20.00 | | 66 | 19.0 | 56 | 13.3 | 48 | 9.0 | 52 | 7 | 140 | | 28.55 | | | M | AA | | 30.02 |
| 27 | 0650 | 0 | SCT150 BKN200 | 45.00s | | 70 | 21.0 | 58 | 14.2 | 48 | 9.0 | 46 | 10 | 110 | | 28.58 | | | M | AA | | 30.05 |
| 27 | 0747 | 0 | SCT150 BKN200 | 45.00s | | 73 | 23.0 | 58 | 14.4 | 46 | 8.0 | 38 | 11 | 090 | | 28.57 | | | M | AA | | 30.04 |
| 27 | 0850 | 0 | FEW080 SCT100 BKN150 | 20.00 | | 75 | 24.0 | 59 | 14.8 | 46 | 8.0 | 36 | 17 | 100 | 23 | 28.57 | | | M | AA | | 30.04 |
| 27 | 0947 | 0 | FEW080 SCT150 BKN200 | 45.00s | | 73 | 23.0 | 60 | 15.4 | 50 | 10.0 | 44 | 11 | 110 | 18 | 28.59 | | | M | AA | | 30.06 |
| 27 | 1047 | 0 | SCT150 BKN200 | 45.00s | -RA | 72 | 22.0 | 62 | 16.5 | 55 | 13.0 | 55 | 24 | 060 | 30 | 28.52 | | | M | AA | | 29.99 |
| 27 | 1150 | 0 | SCT120 BKN200 | 45.00 | | 77 | 25.0 | 63 | 17.3 | 54 | 12.0 | 45 | 8 | 190 | | 28.54 | | | M | AA | | 30.01 |
| 27 | 1347 | 0 | FEW120 SCT180 BKN200 | 35.00 | | 84 | 29.0 | 63 | 17.1 | 48 | 9.0 | 29 | 7 | 080 | 18 | 28.48 | | | M | AA | | 29.94 |
| 27 | 1447 | 0 | FEW100 SCT180 BKN200 | 45.00 | | 88 | 31.0 | 64 | 17.8 | 48 | 9.0 | 25 | 11 | 160 | 17 | 28.46 | | | M | AA | | 29.92 |
| 27 | 1547 | 0 | SCT120 SCT200 | 45.00 | | 88 | 31.0 | 64 | 17.8 | 48 | 9.0 | 25 | 7 | 140 | | 28.44 | | | M | AA | | 29.90 |
| 27 | 1649 | 0 | SCT120 SCT200 | 45.00 | | 88 | 31.0 | 65 | 18.3 | 50 | 10.0 | 27 | 10 | 140 | | 28.43 | | | M | AA | | 29.89 |
| 27 | 1747 | 0 | SCT080 SCT100 BKN150 | 20.00 | | 86 | 30.0 | 65 | 18.4 | 52 | 11.0 | 31 | 13 | 150 | | 28.44 | | | M | AA | | 29.90 |
| 27 | 1950 | 0 | CLRs | 20.00 | | 81 | 27.0 | 64 | 17.5 | 52 | 11.0 | 37 | 9 | 190 | | 28.46 | | | M | AA | | 29.92 |
| 27 | 2049 | 0 | CLRs | 20.00 | | 81 | 27.0 | 62 | 16.5 | 48 | 9.0 | 32 | 0 | 000 | | 28.46 | | | M | AA | | 29.93 |
| 27 | 2147 | 0 | SCT150 | M | | 79 | 26.0 | 62 | 16.6 | 50 | 10.0 | 36 | | M | | 28.48 | | | M | AA | | 29.94 |
| 27 | 2247 | 0 | SCT120 | 20.00 | | 75 | 24.0 | 61 | 16.3 | 52 | 11.0 | 45 | 5 | 040 | | 28.48 | | | M | AA | | 29.94 |
| 27 | 2347 | 0 | SCT120 | 20.00 | | 73 | 23.0 | 60 | 15.4 | 50 | 10.0 | 44 | 5 | 060 | | 28.46 | | | M | AA | | 29.93 |

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U.S. Department of Commerce
National Oceanic & Atmospheric Administration

**QUALITY CONTROLLED LOCAL
CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
WILLIAMS GATEWAY AIRPORT (23104)
PHOENIX, AZ
(09/2016)**

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: 1382 ft. above sea level

Latitude: 33.3

Longitude: -111.666

Data Version: VER2

| Date | Time (LST) | Station Type | Sky Conditions | Visibility (SM) | Weather Type | Dry Bulb Temp | | Wet Bulb Temp | | Dew Point Temp | | Rel Humd % | Wind Speed (MPH) | Wind Dir | Wind Gusts (MPH) | Station Pressure (in. hg) | Press Tend | Net 3-hr Chg (mb) | Sea Level Pressure (in. hg) | Report Type | Precip. Total (in) | Alti- meter (in. hg) |
|------|---------------|-----------------|-------------------|--------------------|-----------------|---------------------|------|---------------------|------|----------------------|------|------------------|------------------------|-------------|------------------------|---------------------------------|---------------|----------------------------|--------------------------------------|----------------|--------------------------|----------------------------|
| | | | | | | (F) | (C) | (F) | (C) | (F) | (C) | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| 28 | 0015 | 0 | CLR | 7.00 | -RA | 72 | 22.0 | 59 | 15.2 | 50 | 10.0 | 46 | 0 | 000 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 0035 | 0 | CLR | 10.00 | | 70 | 21.0 | 59 | 14.7 | 50 | 10.0 | 49 | 5 | 180 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 0055 | 0 | CLR | 10.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 3 | 150 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 0115 | 0 | CLR | 10.00 | | 70 | 21.0 | 59 | 14.7 | 50 | 10.0 | 49 | 3 | 180 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 0135 | 0 | CLR | 10.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 3 | 190 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 0155 | 0 | CLR | 10.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 0 | 000 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 0215 | 0 | CLR | 10.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 0 | 000 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 0235 | 0 | CLR | 10.00 | | 68 | 20.0 | 58 | 14.3 | 50 | 10.0 | 53 | 5 | 180 | | 28.48 | | | M | AA | | 29.94 |
| 28 | 0255 | 0 | CLR | 10.00 | | 68 | 20.0 | 59 | 14.8 | 52 | 11.0 | 57 | 11 | 150 | | 28.48 | | | M | AA | | 29.95 |
| 28 | 0315 | 0 | CLR | 10.00 | | 72 | 22.0 | 60 | 15.7 | 52 | 11.0 | 50 | 8 | 150 | | 28.49 | | | M | AA | | 29.96 |
| 28 | 0335 | 0 | CLR | 10.00 | | 70 | 21.0 | 61 | 15.8 | 54 | 12.0 | 57 | 3 | 100 | | 28.48 | | | M | AA | | 29.94 |
| 28 | 0355 | 0 | CLR | 10.00 | | 70 | 21.0 | 62 | 16.7 | 57 | 14.0 | 64 | 9 | 210 | | 28.48 | | | M | AA | | 29.95 |
| 28 | 0415 | 0 | CLR | 10.00 | | 68 | 20.0 | 60 | 15.7 | 55 | 13.0 | 63 | 5 | 170 | | 28.48 | | | M | AA | | 29.95 |
| 28 | 0435 | 0 | CLR | 10.00 | | 70 | 21.0 | 61 | 16.1 | 55 | 13.0 | 59 | 6 | 170 | | 28.48 | | | M | AA | | 29.95 |
| 28 | 0447 | 0 | SCT090 BKN130 | 20.00 | | 70 | 21.0 | 61 | 16.1 | 55 | 13.0 | 59 | 6 | 150 | | 28.48 | | | M | AA | | 29.95 |
| 28 | 0552 | 0 | SCT090 BKN120 | 20.00s | | 70 | 21.0 | 62 | 16.7 | 57 | 14.0 | 64 | 6 | 060 | | 28.48 | | | M | AA | | 29.95 |
| 28 | 0647 | 0 | BKN080 | 45.00 | | 70 | 21.0 | 62 | 16.7 | 57 | 14.0 | 64 | 5 | 090 | | 28.50 | | | M | AA | | 29.97 |
| 28 | 0748 | 0 | BKN080 | 45.00 | | 73 | 23.0 | 63 | 17.3 | 57 | 14.0 | 57 | 0 | 000 | | 28.52 | | | M | AA | | 29.99 |
| 28 | 0847 | 0 | BKN120 BKN200 | 45.00 | | 77 | 25.0 | 65 | 18.1 | 57 | 14.0 | 50 | 0 | 000 | | 28.53 | | | M | AA | | 30.00 |
| 28 | 0947 | 0 | BKN120 BKN200 | 45.00 | | 88 | 31.0 | 67 | 19.3 | 54 | 12.0 | 31 | 11 | 130 | 16 | 28.53 | | | M | AA | | 30.00 |
| 28 | 1147 | 0 | BKN080 BKN180 | 35.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 8 | 130 | | 28.51 | | | M | AA | | 29.98 |
| 28 | 1247 | 0 | SCT120 BKN180 | 45.00 | | 91 | 33.0 | 68 | 20.1 | 55 | 13.0 | 30 | 9 | 140 | | 28.50 | | | M | AA | | 29.97 |
| 28 | 1351 | 0 | SCT120 BKN200 | 45.00 | | 93 | 34.0 | 68 | 20.1 | 54 | 12.0 | 27 | 13 | 170 | 20 | 28.46 | | | M | AA | | 29.93 |
| 28 | 1448 | 0 | SCT120 BKN200 | 45.00 | | 93 | 34.0 | 68 | 20.1 | 54 | 12.0 | 27 | 9 | 180 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 1547 | 0 | BKN120 BKN180 | 45.00s | | 95 | 35.0 | 69 | 20.5 | 54 | 12.0 | 25 | 11 | 180 | | 28.46 | | | M | AA | | 29.92 |
| 28 | 1647 | 0 | BKN070 | 45.00 | | 91 | 33.0 | 68 | 19.8 | 54 | 12.0 | 29 | 11 | 160 | | 28.46 | | | M | AA | | 29.93 |
| 28 | 1751 | 0 | BKN090 BKN200 | 45.00 | | 88 | 31.0 | 68 | 20.1 | 57 | 14.0 | 35 | 16 | 120 | | 28.48 | | | M | AA | | 29.95 |
| 28 | 1847 | 0 | BKN090 OVC150 | 20.00 | | 84 | 29.0 | 66 | 18.6 | 54 | 12.0 | 36 | 11 | 120 | | 28.50 | | | M | AA | | 29.97 |
| 28 | 1956 | 0 | BKN090 BKN150 | 20.00 | | 84 | 29.0 | 68 | 20.0 | 59 | 15.0 | 43 | 18 | 090 | | 28.50 | | | M | AA | | 29.97 |
| 28 | 2053 | 0 | BKN100 | 20.00 | | 82 | 28.0 | 66 | 19.0 | 57 | 14.0 | 43 | 9 | 110 | | 28.51 | | | M | AA | | 29.98 |
| 28 | 2147 | 0 | BKN100 | 20.00 | | 81 | 27.0 | 66 | 18.9 | 57 | 14.0 | 44 | 6 | 120 | | 28.53 | | | M | AA | | 30.00 |
| 28 | 2247 | 0 | BKN080 | 20.00 | | 81 | 27.0 | 65 | 18.3 | 55 | 13.0 | 41 | 6 | 180 | | 28.55 | | | M | AA | | 30.02 |
| 28 | 2347 | 0 | BKN080 | 20.00 | | 81 | 27.0 | 66 | 18.9 | 57 | 14.0 | 44 | 0 | 000 | | 28.55 | | | M | AA | | 30.02 |

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APPENDIX C

NOTICE OF PUBLIC COMMENT PERIOD

**Request for Public Comments on Exceptional Events in the Maricopa County
(Greater Phoenix) PM₁₀ Nonattainment Area**

In 2005, Congress identified a need to account for events that result in exceedances of the National Ambient Air Quality Standards (NAAQS) that are exceptional in nature (e.g., not expected to reoccur or caused by acts of nature beyond man-made controls.) In response, EPA promulgated the Exceptional Events Rule (EER) to address exceptional events in 40 CFR Parts 50 and 51 on March 22, 2007 (72 FR 13560). On October 3, 2016, EPA released final revisions to the exceptional events rule. The EER allows for states and tribes to “flag” air quality monitoring data as an exceptional event. If flagged, these data can be excluded from consideration in air quality planning if EPA concurs with the demonstration submitted by the flagging agency documenting that all procedural and technical requirements have been met.

Pursuant to 40 CFR 50.14(c)(3)(i), the Arizona Department of Environmental Quality (ADEQ) is soliciting comments on its final demonstration of an event that has caused elevated concentrations of PM₁₀ in the Maricopa County (Greater Phoenix) PM₁₀ Nonattainment area on 4/25/16, 5/27/16, 7/29/16, 9/27/16, 9/28/16. ADEQ has decided to flag these episodes based on this analysis. A copy of the demonstration is available for review beginning Monday, 7/31/17, on the ADEQ website at <http://www.azdeq.gov/programs/air-quality-programs/natural-exceptional-events-demonstration>. Interested parties can submit written comments throughout the comment period which will end at 5:00 p.m. on Thursday, 8/31/17. Any comments received will be responded to and forwarded to EPA with the final demonstration.

Written comments should be addressed, faxed, or e-mailed to:

Air Assessment Section, Arizona Department of Environmental Quality, 1110 W. Washington Street, 3415-A, Phoenix, AZ 85007, E-mail: exceptionalevents@azdeq.gov.

In addition to being available on-line, a copy of the analysis is available for review, Monday through Friday, 8:30 a.m. to 4:30 p.m., at the [ADEQ Records Management Center](#), 1110 W. Washington St., Phoenix, AZ, 85007, Attn: Records Center, (602) 771-4380, e-mail: recordscenter@azdeq.gov.

To request an auxiliary aid or service for accessible communication, please contact (602) 771-2215 or at co2@azdeq.gov or dial 7-1-1 for TTY/TTD Services.

6027712338ADEQ

M21287094300101

07/31/17

\$ 920.55

Advertising Invoice

The Arizona Republic
PO Box 677595
Dallas, TX 75267-7595

ADEQ
ATTN: ACCOUNTS PAYABLE
1110 W WASHINGTON
3415A-3
PHOENIX, AZ US 85007

In Phoenix call: 602 444-8561
Out of Phoenix call: 800 331-9304

V LGLA850070000

ARD

| <u>Pub Date</u> | <u>Description</u> | <u>Class Category</u> | <u>Class</u> | <u>Units</u> | <u>Times Run</u> | <u>Billed Units</u> | <u>Rate</u> | <u>Amount</u> |
|--|--------------------|-----------------------|--------------|--------------|------------------|---------------------|-------------|---------------|
| Request for Public Comments on Exc (PO# ADSP012-023863:508) | | | | | | | | |
| 07/31 | Classified - Daily | State Agency Public | 6840 | 95.00 | 1 | 95 | 9.69 | 920.55 |

| | |
|------------------------------|---------------|
| Total Invoice Charges | 920.55 |
|------------------------------|---------------|

| | |
|-------------------------|---------------|
| Total Amount Due | 920.55 |
|-------------------------|---------------|



TO ENSURE PROPER CREDIT RETURN BOTTOM PORTION OF THIS BILL WITH YOUR PAYMENT

6027712338ADEQ

Exp Date (mm-yy)

The Arizona Republic
PO Box 677595
Dallas, TX 75267-7595

DUE UPON RECEIPT

\$ 920.55

300000000212870943001010060277123380000920556

THE ARIZONA REPUBLIC

PO Box 194, Phoenix, Arizona 85001-0194

Phone 1-602-444-7315

Fax 1-877-943-0443

AFFIDAVIT OF PUBLICATION

ADEQ

1110 W WASHINGTON

Phoenix, AZ 85007

Order # 0008709430 # of Affidavits 1

P.O. # ADSPO12-023863:508

Published Date(s):

07/31/17

STATE OF ARIZONA

COUNTY OF

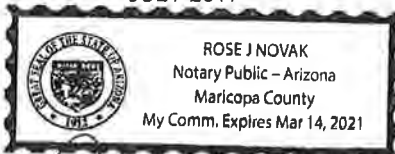
SS.

I, being first duly sworn, upon oath deposes and says: That I am the legal clerk of the Arizona Business Gazette, a newspaper of general circulation in the counties of Maricopa, Coconino, Pima and Pinal, in the State of Arizona, published weekly at Phoenix, Arizona, and that the copy hereto attached is a true copy of the advertisement published in the said paper on the dates indicated

Sworn to before me this

31 ST day of

JULY 2017



Notary Public

Request for Public Comments on Exceptional Events in the Maricopa County (Greater Phoenix) PM10 Nonattainment Area

In 2005, Congress identified a need to account for events that result in exceedances of the National Ambient Air Quality Standards (NAAQS) that are exceptional in nature (e.g., not expected to reoccur or caused by acts of nature beyond man-made controls.) In response, EPA promulgated the Exceptional Events Rule (EER) to address exceptional events in 40 CFR Parts 50 and 51 on March 22, 2007 (72 FR 13560). On October 3, 2016, EPA released final revisions to the exceptional events rule. The EER allows for states and tribes to "flag" air quality monitoring data as an exceptional event. If flagged, these data can be excluded from consideration in air quality planning if EPA concurs with the demonstration submitted by the flagging agency documenting that all procedural and technical requirements have been met.

Pursuant to 40 CFR 50.14(c)(3)(i), the Arizona Department of Environmental Quality (ADEQ) is soliciting comments on its final demonstration of an event that has caused elevated concentrations of PM10 in the Maricopa County (Greater Phoenix) PM10 Nonattainment area on 4/25/16, 5/27/16, 7/29/16, 9/27/16, 9/28/16. ADEQ has decided to flag these episodes based on this analysis. A copy of the demonstration is available for review beginning Monday, 7/31/17, on the ADEQ website at www.azdeq.gov/environment/air/plan/nee.html. Interested parties can submit written comments throughout the comment period which will end at 5:00 p.m. on Thursday, 8/31/17. Any comments received will be responded to and forwarded to EPA with the final demonstration. Written comments should be addressed, faxed, or e-mailed to: Air Assessment Section, Arizona Department of Environmental Quality, 1110 W. Washington Street, 3415-A, Phoenix, AZ 85007. E-mail: exceptionalevents@azdeq.gov.

In addition to being available on-line, a copy of the analysis is available for review, Monday through Friday, 8:30 a.m. to 4:30 p.m., at the ADEQ Records Management Center, 1110 W.

Washington St., Phoenix,
AZ, 85007, Attn: Records
Center, (602) 771-4380, e-
-mail: recordscenter@azdeq
.gov.

To request an auxiliary aid
or service for accessible
communication, please con-
tact (602) 771-2215 or at co2
@azdeq.gov or dial 7-1-1 for
TTY/TTD Services.
Pub: July 31, 2017

APPENDIX D

EXCEPTIONAL EVENT INITIAL NOTIFICATION FORM

EE Initial Notification Summary Information

PM₁₀

Submitting Agency: Arizona Department of Environmental Quality

Agency Contact: **Jonny Malloy**

Date Submitted: **May 18, 2017**

Applicable NAAQS: **1987 PM₁₀**

Affected Regulatory Decision¹: **Maricopa County Non-Attainment**

(for classification decisions, specify level of the classification with/without EE concurrence)

Area Name/Designation Status: **Maricopa County – Phoenix (Serious)**

Design Value Period (list three year period): **2015-2017 and/or 2016-2018**

A) Information specific to each flagged monitor day that may be submitted to EPA in support of the affected regulatory decision listed above

| Date of Event | Type of Event (high wind, volcano, wildfires/prescribed fire, other ²) | AQS Flag | Monitor AQS ID (and POC) | Monitor Name | Exceedance Concentration (with units) | Notes (e.g. event name, links to other events) |
|--------------------|--|----------|--------------------------|---------------|---------------------------------------|---|
| September 27, 2016 | High Wind | RJ | 04-013-2001-1 | Glendale | 180 µg/m ³ | State of Arizona Exceptional Event Documentation of a High Wind Dust Event PM10 Exceedance on September 27, 2016 in the Maricopa County PM10 Nonattainment Area |
| September 27, 2016 | High Wind | RJ | 04-013-9997-3 | JLG Supersite | 161 µg/m ³ | State of Arizona Exceptional Event Documentation of a High Wind Dust Event PM10 Exceedance on September 27, 2016 in the Maricopa County PM10 Nonattainment Area |
| September 28, 2016 | High Wind | RJ | 04-013-2001-1 | Glendale | 223 µg/m ³ | State of Arizona Exceptional Event Documentation of a High Wind Dust Event PM10 Exceedance on September 28, 2016 in the Maricopa County PM10 Nonattainment Area |

B) Violating Monitors Information

(listing of all violating monitors in the planning area, regardless of operating agency, and regardless of whether or not they are impacted by EEs)

| Monitor (AQS ID and POC) | Design Value (<u>without</u> EPA concurrence on any of the events listed in table A above) | Design Value (<u>with</u> EPA concurrence on all events listed in table A above) |
|--------------------------|---|---|
| | | |

¹ designation, classification, attainment determination, attainment date extension, or finding of SIP inadequacy leading to SIP call

² Provide additional information for types of event described as "other"

C) Summary of Maximum Design Value (DV) Monitor Information (Effect of EPA Concurrence on Maximum Design Value Monitor Determination)

(Two highest values from Table B)

| | | | |
|--|-----------------------------|--|---|
| Maximum DV monitor (AQS ID and POC) <u>without</u> EPA concurrence on any of the events listed in table A above (2015-2017) | Design Value 0.66 | Design Value Monitor Glendale (04-013-2001-1) and West 43rd (04-013-4009-1) | Note: The Glendale monitor exceedances are in the EE high wind submittal for Sept. 27-28, 2016. |
| Maximum DV monitor (AQS ID and POC) <u>with</u> EPA concurrence on all events listed in table A above (2015-2017) | Design Value 0.66 | Design Value Monitor West 43rd (04-013-4009-1) | |
| Maximum DV monitor (AQS ID and POC) <u>without</u> EPA concurrence on any of the events listed in table A above (2016-2018) | Design Value 0.66 | Design Value Monitor Glendale (04-013-2001-1) and West 43rd (04-013-4009-1) | Note: The Glendale monitor exceedances are in the EE high wind submittal for Sept. 27-28, 2016. |
| Maximum DV monitor (AQS ID and POC) <u>with</u> EPA concurrence on all events listed in table A above (2016-2018) | Design Value 0.66 | Design Value Monitor West 43rd (04-013-4009-1) | |

Note: The event in Table A is being submitted as an exceptional event demonstration due to the historical likelihood of additional high wind dust events occurring over the next few years. Subsequent initial notification forms may be submitted to EPA as documentation of the additional 2017-2018 events are pursued and prepared.